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Gleanings in Bee Culture



VOL. XLII. JUNE 15, 1914, NO. 12.

POLLYANNA THE GLAD BOOK

By ELEANOR H. PORTER, author of
"Miss Billy" and "Miss Billy's Decision"

and "Gleanings in Bee Culture," one
year, Both for \$1.50

The book, POLLYANNA, has been one of the best-selling books of the season because of the winsomeness of the story.

Pollyanna, a lovable little lass, is the daughter of a minister in the West. She is left an orphan and is sent back East to make her home with a staid and prejudiced maiden aunt. In winning the affection of her aunt and the respect of the villagers, she finds a place in the hearts of all her readers.

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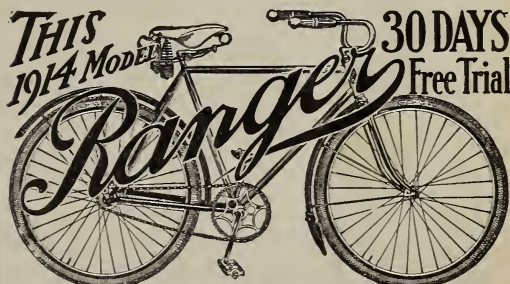


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TIRES, COASTER-BRAKE rear wheels, inner tubes, lamps, cyclometers, equipment and parts for all bicycles at **half usual prices.** A limited number of second hand bicycles taken in trade by our retail stores will be closed out at once, at \$3 to \$8 each.

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It Costs You Nothing to learn what we offer you and how we can do it. You will be astonished and convinced. **Do not buy** a bicycle, tires or sundries until you get our catalog and new low prices and marvelous offers. **Write today.**

MEAD CYCLE CO., Dept. K 113, CHICAGO, ILL.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING-RULES Adopted at Cincinnati, Feb. 13, 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH:

1. *Extra Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the section to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 10 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Comb not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR:

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT:

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey, three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY:

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no sections in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means than the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

DENVER.—Regarding the honey market, we have no more comb honey to offer. We are jobbing extracted honey as follows: White extracted, 8; light amber, 7. We pay 32 cts. per pound cash and 34 in trade for clean yellow wax delivered here.

COLORADO HONEY-PRODUCERS' ASSOCIATION,
Denver, Col., June 1. F. RAUCHFUSS, Mgr.

INDIANAPOLIS.—Fancy white comb is being offered here at 16 to 17 cents per pound; amber comb, 14 to 15; white-clover extracted, 9 to 10 in 5-gallon cans. Much comb honey is being held here; but at this writing there is very little demand. Extracted is in fair demand. Producers are being paid 32 cents cash for beeswax, or 34 in trade.

Indianapolis, June 1 WALTER S. POWDER.

**JUST
OUT!**

New 1914 Catalog--"Everything for Bees"

Lay your plans for the new season now. Send for the 1914 Muth Catalog of Beekeepers' Supplies. Its just off the press. In it you will find full information about the remarkable MUTH SPECIAL Dovetailed Hives. Drop a postal card at once---sure!

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"The Busy Bee Men"

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P. S.—Ship us your old combs and cappings and let us render them for you. Our process extracts the last drop of wax from the slumgum. This means money for you. Write for full particulars.

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During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

New 64-page Catalog

Our new 1914 catalog contains double the pages of former editions and requires extra postage. It is filled from cover to cover with complete lists of goods in every line to meet every requirement of beekeepers. If you haven't received a copy when you read this, be sure to ask for one. It will save you money.

New Features for 1914

Few radical changes have been made this season. It should be noted, however, that we will send out with regular hives, unless otherwise ordered, the metal telescopic or R cover with super cover underneath. The side rail for the bottom-board will be extra length so as to overcome the difficulty experienced by some last season. Improvements have been made in extractors. We shall carry a very heavy stock so that orders may be filled with our usual promptness. Write us your needs.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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BOSTON.—We quote fancy and No. 1 white comb honey at 15 to 16; fancy white extracted honey in 60-lb. cans, 11. Beeswax, 30.
Boston, June 1. **BLAKE-LEE CO.**

ZANESVILLE.—No. 1 to fancy white comb is quoted at 16½ to 18½ in a jobbing way; 18 to 20 wholesale. Best white extracted in 60-lb. cans, 9 to 10. These quotations are for white clover. Western honeys rule about a cent less. Market firm, but rather quiet. Producers receive for beeswax 32 to 33 cash, 34 to 35 in exchange for supplies.
Zanesville, June 1. **EDMUND W. PEIRCE.**

LIVERPOOL.—Buyers of new crop Chilean honey for shipment at \$4.92 per 100 lbs., c. i. f., average pile 3. The spot market is flat. For pile 1, \$6.48 to \$7.20 is quoted, white to yellow; \$6.00 for pile 2, yellow; \$6.00 for pile 3, yellow to brown; \$4.56 to \$4.80—fermented, etc. For Chilean beeswax the spot prices quoted do not attract buyers. The nominal value is \$34.02 to \$42.48 per 100 lbs., according to quality.
Liverpool, May 26. **TAYLOR & CO.**

KANSAS CITY.—Our market is about cleaned up on comb honey—not a case left in the wholesalers' hands, and very little left in the retailers'. Plenty of extracted honey, and the demand is very light. New comb honey in 24 sections would sell for \$3.25 to \$3.50 per case for No. 1 quality. We quote extracted white at 7½ to 8. On beeswax we quote 30 for No. 1 quality, and 25 for No. 2.
C. C. CLEMONS PRODUCE CO.
Kansas City, Mo., June 1.

NEW YORK.—As to comb honey, we have nothing new to report. There are some off grades of amber still on the market unsold, as there is no demand to speak of for those grades, and it is almost impossible to find buyers. In regard to extracted, the demand is only fair while arrivals are large, especially from the West Indies, and the new crop is now beginning to arrive from the southern States. We quote nominally from 58 to 75 cts. per gallon, according to quality. Beeswax is firm at 34 to 35.
New York, June 1. **HILDRETH & SEGELKEN.**

ST. LOUIS.—The honey market is very dull at present. We are quoting southern extracted and strained bright amber honey in barrels at 5½ to 6½; in cans, 6 to 7; dark, ½ to 1 ct. per lb. less. Comb honey, fancy clover brings from 14 to 15; light amber, 12 to 14; broken and leaky from 7 to 8. By the case, fancy white-clover comb honey brings from \$3 to \$3.25, or light amber from \$2.25 to \$2.50; dark and inferior, \$2.00. Beeswax is very scarce, and wanted; quoted prime at 35; inferior and impure, less.
R. HARTMANN PRODUCE CO.
St. Louis, June 1.

A KIND WORD FROM IDAHO.

Dear Mr. Root:—The writer has enjoyed your Home talks for all these years, and especially since I have become more diligent as a laborer in the vineyard of Jesus. I have been making use of extracts from your Homes in our Endeavor, and the young people are interested.

As president of our Loyal Men's class of our Christian Church Sunday-school I realize how hard it is to get men of mature years to enroll in Bible study, and I enjoyed and admired the zeal and tact of Brother Thompson in broaching the subject to you, leaving you alone with your thoughts at the proper time, and then helping you to make the decision through his pleading voice and the tender look of his eyes, full of compassion for his neighbors. It meant much to him, but still more to you, for it no doubt was the turning-point of your life, and embodies the thought that I love to call attention to in our different meetings—how little it sometimes takes to make a Christian and how careful we ought to be not to let an opportunity pass by to do our part.

The State-wide prohibition convention held in this city has just been brought to a close. You will rejoice with us in our endeavor to make Idaho the first dry State west of the Rockies. We declared for prohibition by legislative enactment, and by an

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amendment to the constitution of Idaho, which will forever prohibit, in this State, the manufacture, sale, importation, and transportation of intoxicating liquors to be used as a leverage.
A goodly number of Nez Perce Indians were in attendance, taking active part in addresses on the subject, and calling attention to the fact that they, as a tribe, inaugurated the fight against this great evil in their first treaty in 1855, and in every subsequent treaty with the government.
Lewiston, Idaho, March 9. **A. A. HANSEN.**

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873

CIRCULATION 35,000

Issued semi-monthly

A. L. BOYDEN, Advertising Manager

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SPACE RATES. To be used in one issue: Fourth-page, \$12.50; half-page, \$25.00; page, \$50.00.

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Columns to page 2 (regular magazine page)

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BEE SMOKER
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nearly forty years on the market, and the standard in this and many foreign countries. The all-important tool of the most extensive honey-producers of the world. Such men as Mr. France and the Dadants use the Bingham. By co-operation Mr. Townsend uses six Smoke Engines. For sale at your dealers' or direct. Postage extra.

Smoke Engine, 4-inch stove; wt. each, 1 $\frac{1}{4}$ lb. \$1.25

Doctor, 3 $\frac{1}{2}$ -inch stove; weight each, 1 $\frac{1}{2}$ lbs. .85

Two larger sizes in copper, extra .50

Conqueror, 3-inch stove; weight each, 1 $\frac{1}{2}$ lb. .75

Little Wonder, 2 $\frac{1}{2}$ -inch stove; wt. each, 1 lb. .50

Two largest sizes with hinged cover.

Woodman Style Veils

Our veils contain 1 $\frac{1}{2}$ yards of the best material for the purpose—imported French tulle veiling.

They are made

with a rubber cord in the top to fit around the hat, and the lower edge has the cord arrangement shown above, the two ends going around behind the body, and back in front to tie. This arrangement holds the veil down on the shoulders snugly, away from the neck, and permits the wearer to handle bees in his shirt sleeves with no chance of bees crawling up and under veil. With a bit of fair size brim to carry veil away from the face you are as secure from stings, movements as free and unrestricted, and as cool and comfortable as you would be at a summer resort.

All cotton, each, postpaid, \$.50

Cotton with silk face, each, postpaid, .60

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Extra silk face piece, postpaid, .10

Long-sleeve bee-gloves .35

Such men as R. F. Holtermann, J. E. Crane & Son, N. E. France, and many others all over the U. S. A., order a supply of these veils each season, year after year.



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We offer this year a very complete line of cartons for comb honey—any size or color, with any desired printing. Bottles, jars, and cans for extracted honey with capacity ranging from that of a tumbler to a barrel. Special attention is directed to our assortment of Friction-top Pails and to tin cans of $\frac{1}{2}$, 1, and 5 gallon capacity. Get full information, prices, and samples.

The A. I. Root Company, - - - - - Medina, Ohio



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**Sanitary
Paper Bottles**
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lustrated folder
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"ROOT QUALITY" has always represented the acme of perfection in every thing pertaining to bees.

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DR. C. C. MILLER

American Bee Journal, Hamilton, Illinois

Gleanings in Bee Culture

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EDITORIALS

A Big Supply Year

THE year 1914 will reach the high-water mark in the demand for bee-supplies. So far as we know, all the bee-supply manufacturers in the country have had a bigger demand for goods than in all their history. This looks as if the bee business were looking up. The great season of 1913, with a promise of another good one, has boomed the supply business away beyond normal.

Unusual Field-Day Meeting for Iowa Beekeepers

THE beekeepers of Iowa are to have an unusual opportunity to become acquainted with Frank Coverdale, of Delmar, Iowa, who has a national reputation as an authority on the growing of sweet clover. In the brief mention of this meeting in GLEANINGS under Convention Notices the date is given as July 7.

Beekeepers and farmers in general are going to know very much more about sweet clover ten years hence than they know now. Mr. Coverdale is one of the pioneers in finding new values of this old plant.

A Greater Demand for Power-driven Extractors

THE large honey-producers of the country are beginning to see that they cannot afford to take their honey with hand-driven extractors. One by one, the large producers are adopting the big outfits. They not only extract honey more cheaply, but, what is of considerable importance, they extract the combs cleaner. And here is still one more fact: The bigger the extractor, the less out of balance the reel will be on account of uneven weight of combs.

While the first cost of the machines is considerably more, they are not more expensive than a lot of little ones scattered around at all the outyards. In this day and age of the world it pays to draw the combs to one

central extracting-plant, and cart them back again. For this purpose a small motor truck is far more satisfactory than a heavy machine.

Slightly Exaggerated Again

WE observe that Mr. H. G. Quirin, the queen-breeder at Bellevue, Ohio, according to the newspapers, will send out about six million queens this coming season from his place. Our subscriber who directed our attention to this suggests that our project at Apalachicola is a dismal failure in comparison.

We only mention this as another sample of newspaper exaggeration. The probabilities are that Mr. Quirin told the correspondent that he would probably raise somewhere around six thousand queens, and this might be possible. If Mr. Quirin should raise six million queens in a year, and he does his work all alone, he would be some hustler. In fact, there wouldn't be any chance for the rest of us to rear queens.

An Enormous Demand for Early Queens in 1914

NEVER before in all the history of beedom was there such a demand for early queens. The bee-martin seriously handicapped the queen-rearing operations in Florida that were to supply us with early queens. We wired queen-breeders all over the country for queens; but every one of them was swamped with orders of his own. In the mean time complaints began to come in from dissatisfied customers who sent their money to some of these queen-breeders, and who had received nothing in return other than an acknowledgment of the receipt of the orders. There was a big demand for early queens last spring, but nothing as compared with this year.

Mr. A. B. Marchant, who was to supply us with queens, was unable to get them to us as fast as required. The main reason for this was the bee-martin that would nip

off his virgins as soon as they took their wedding-flight. One would think he could have cleaned them out with a shotgun; but they were too numerous.

The Prospects of the Season; Prices, etc.

CLOVER is just opening up in this locality, June 10; and while there does not seem to be as much of it this year as last, there apparently will be a fair crop. Indications all over the clover area of the United States seem to show it will be good; but for all that, there may be a short crop. The excessive hot wave over the country may blight the crop yet. It is too early yet to make any positive predictions.

In the mean time there is some uneasiness over the matter of prices. There is no denying the fact that there was considerable honey left over from last season. Many producers held out for better prices, and in this they probably made a mistake. If there should be a good crop of clover again, and a fair crop of alfalfa, prices will be a little easier than last year.

We are requesting our subscribers to send postal-card reports from their respective localities. Do not write more than one or two sentences. If clover is scarce, say so; if the drouth and hot weather have been excessive, indicate that also.

Later.—Hot weather is drying up the clover, and bees are not doing much. It begins to look bad for clover.

A Handy Scythe for Beeyard Work

It is not often that we refer to articles advertised in these columns; and when we do, it is *not* because we have been paid to do it. Our editorial space, and space in Special Notices, is not for sale at any price; but when we do mention favorably any article that has been advertised with us it is because it has unusual merit. A case in point is the imported scythe blades advertised by the Marugg Co., Department C, Tracy City, Tenn. The blade is very light and thin—almost as thin as a Gillette razor-blade, but it has a very rigid back. It is very wide nearest the handle, and tapers to a sharp point. The snath that goes with these blades is very light also. The tool as a whole is the handiest thing to mow around a hive with of any thing we have ever tried; and it is away ahead of a common scythe except for mowing brush. After you get the “hang” of it you will like it and wonder why we Americans do not use it more

generally. This same tool is used all over Europe.

We placed one in the hands of an old countryman. His eyes twinkled at once as he said, “Dot’s de tool for me.” And he knows how to sharpen it too.

The company furnishes a little anvil and hammer to hammer the blade, and then it has an edge given to it with a special whetstone.

Safe Arrival of the two Last Carloads of Bees from Florida

THE last two carloads in charge of our two men, Mr. J. E. Marchant and J. P. Anthony, arrived at Medina June 2. In one of the cars we put 13,000 lbs. of tupelo honey that we extracted, and some wax that we had bought, billing the cars as “bees, honey, and wax.” The other car had bees only. Mr. Marchant had planned to bring back 800 colonies and 500 three-frame nuclei; but he brought back 650 colonies, and nearly the full number of nuclei. The mosquito hawks (dragon-flies or devil’s darn-ing-needles, as some call them) are very destructive to bees and queens in the South at certain times of the year. Said Mr. Marchant, “These mosquito hawks did us nearly a thousand dollars of damage. They were so bad, indeed, that we were compelled to shut the bees in the hives in spite of the extremely hot weather. This necessarily caused some bees to worry and die; but the loss in this way was nothing in comparison with letting the bees fly, only to be killed by the thousands by these fell destroyers.”

A northern man can scarcely realize how destructive these agents are. They come on at certain seasons in great swarms in different parts of Florida and in different months. Sometimes they come early and sometimes late. Said Mr. O. O. Poppleton, “It seems almost as though the bees learn to stay in their hives, as they easily recognize their natural enemies in this Southland.”

Our recent trip through Florida was to find some place where mosquito hawks do not get in their destructive work, but we found no such place. The result of closing in our bees, together with the fearful work of the mosquito hawks, cut our shipment down nearly 150 colonies—at least we were that number short of our original estimate.

Our Mr. Marchant who went down and came back with the bees says this season has been one of the worst that was ever known. The cold backward weather delayed the blooming of the tupelos; and when they did come out the weather was so extremely hot and dry that they were in bloom only

about half as long as they usually are. But in spite of this he increased one carload of bees up to 650 colonies and 460 three-frame nuclei, took 13,000 lbs. of honey, and drew out nearly 6000 frames of foundation. Another year he thinks he can do much better, as conditions can hardly be worse.

Now, then, was the experiment a success? Even if we take into consideration that our increase and honey crop fell short, our scheme was not a failure by any means. The project will pay out, and leave us something to the good. In addition we acquired some valuable experience, all of which has been or will be given in these columns for the benefit of the public at large. When viewed from this standpoint our project was a big success. In all the history of beekeeping we do not believe that any one ever before moved bees south, and made a three-and-half-to-one increase. It must not be forgotten that, in spite of the unfavorable weather, we drew out nearly 6000 frames of foundation into fine nice combs. We have always been short on combs; and we now have the nicest set of wired combs we ever had. If we leave out of the account entirely the publicity item, which we feel sure means a big boost to GLEANINGS, we are still on the good side of our ledger account.

As clover is very promising, and basswood looks well, our Florida project will pay out bigger yet if we get any kind of crop. We now have eleven yards of bees. The outyards run for honey will contain about 60 colonies, or what is the equivalent of two truckloads. Our light gasoline-truck is able to carry 30 colonies at a time. With this truck we can deposit enough bees at the outyard to make three or four yards in a day.

By the way, the big team and the wagon can haul only 30 colonies. It takes the team a good part of a whole forenoon to go to an outyard and back; but the gasoline-truck will do the same work in an hour; and, what is of considerable importance, it does not make any difference if there are a few bees leaking out of the hives.

There will be some further illustrations showing the whole project.

A Big Field-Day Meet at Medina

PREPARATIONS are under way for a big field day at Medina, July 9 and 10, under the auspices of the Ohio State Beekeepers' Association. At the last convention, held in Athens, it was decided to have a field day at Medina, on a date to be agreed on later. Many have desired to see the A. I. Root

Co.'s manufacturing plant, their queen-rearing operations, and the various methods for taking honey with a power extractor, a modern capping-melter and separator; and a few have said they desired to see A. I. Root himself, who has agreed to be at home on that day. In this connection, the President, Prof. W. A. Matheny, writes:

I fancy that I can hear all our beekeepers say they are anxious to see your father, A. I. Root. I trust that his health will be such that he will be able to give us a short talk. I confess to you that to see him is my motive in working up this meeting. Of course, I am anxious to go over your plant again, and I am anxious to have our beekeepers see what a wonderful place you have; but I know that every one will enjoy most the privilege of hearing A. I. Root.

Athens, O., May 29.

W. A. MATHENY.

It is proper for us to state that, while we did not invite the State Association to hold its field day at Medina, the organization is more than welcome, as well as every one else who would like to be here on that day, whether they live in Ohio or not. Estimates have been made that there will be 500 people here, including a few prominent beekeepers from all over the country. It is quite possible that we can arrange to have the veteran Dr. C. C. Miller, of Marengo, Ill., and perhaps G. M. Doolittle. Mr. Doolittle is a good speaker as well as a writer. It is worth going a hundred miles to hear either of them talk.

The date is set in July so that beekeepers will not be tied up at home on account of their honey-flow.

As hotel accommodations are not extensive here, we shall probably have to arrange for one of our warehouse rooms where we can sleep the men on cot beds and straw. The women and children can probably be accommodated in the homes of the town.

We have never felt that it was proper for us to invite any beekeepers' organization to meet at Medina, on account of the indirect advertising it might give to our company; but when an organization takes the initiative, as the Ohio State Association has done, we are glad to co-operate in making their field-day a success. In this connection, every one who expects to come here will send a card to Prof. Matheny in order that he and ourselves may be able to make proper arrangements to accommodate the people.

Many will arrive on the afternoon of July 9; and while there will be some field-day operations on that day, the principal part of them will doubtless occur on the day following. We do not know what the program will be, but we suppose there will be addresses on the evening of the 9th as well as during the day of the 10th, accompanied by demonstrations.

Those near by can bring their lunches, while others will be served, probably, at 35 cents a meal at the hotels, restaurants, and by the ladies of some of the churches.

Some Wonderful Bee Country in the Cold Northwest

MR. G. C. RAHN, box 293, Haileybury, Ontario, Canada, called to see us a few days ago, and told us something about the possibilities of keeping bees in his part of Canada. As an evidence of what can be done by a man who thoroughly understands his business, he ordered from the southern part of the United States a number of pound packages of bees with queens. By careful stimulative feeding he built each of these pounds of bees into colonies so that they averaged that season from 70 to 75 lbs. of clover comb honey in Danzenbaker sections. He also has produced as high as 300 lbs. of comb honey from one colony, wintered in his cellar, spring count. He had other yields almost as good from other colonies he had wintered. It takes a good beekeeper, of course, to get yields like these, even in the best of localities. But no beekeeper, no matter how expert, could accomplish these results unless he were in a good locality.

There are large areas in his country where bees can be kept very profitably, especially after the land has been cleared. Willow-herb, raspberry, and clover follow on in quick succession. The cattle from the lower land, in their droppings distribute clover all over this newly cleared land. The timber is cleared off, leaving brush and stumps, which are burned down clean—root, branch, and stumps. The land will then be found in fine condition for cultivation, and will grow almost any thing that thrives in the Northern States—especially the clovers, which are very abundant.

As yet, beekeeping in his part of the country has not made much of a stir; but there are splendid opportunities for the practical, energetic beekeeper who learns thoroughly the locality; but probably only a few could make a success in that cold country. Bees have to be confined in cellars for 20 to 22 weeks, and during a part of the time the temperature has to be kept up by artificial heat. The temperature goes down to as low as 50 degrees below zero in winter, and in the summer it goes as high as 108. It is a country of extremes. The cold winter weather will kill off the bees by the wholesale unless one thoroughly understands the art of wintering, said Mr. Rahn. An ordinary cellar will not do. Some have built expensive concrete cellars; but the walls are

too cold and damp. Mr. Rahn has been successful in wintering his bees in a sort of log-house cellar. The walls are lined with logs, and the top is covered with logs, and then the whole is buried deep. The logs absorb the moisture, so that the bees winter very much better than in stone or concrete cellars. Taking it all in all, the problem of wintering in that country is a serious one, and only a few succeed.

Mr. Rahn is particularly interested in getting bees from Florida in May because he says he knows what he can do if he can get the bees early enough. If bees can be brought from the South in pound packages cheaply enough he can build them up into colonies in short order.

In this connection he indorses our plan of making increase in cellars. We told him that quite a number of expert beekeepers were inclined to poke fun at it as too visionary and too uncertain in results. Said he, "Mr. Root, the plan is all right. I have repeatedly put three-frame colonies in the cellar, and brought them out ten-frame in the spring, notwithstanding the temperature outside was far below zero practically all winter. I use and recommend for this purpose cakes of candy the same as you use and recommend."

Another thing he has learned is that, when the colonies are too strong for their winter stores, they are inclined to have dysentery; but he says a colony of moderate strength, with pure granulated-sugar candy, will have no dysentery, and will probably be stronger than when it went into winter quarters.

In speaking of the different races of bees, he was rather fond of the Caucasians, because they breed up so well and stand cold. They do not swarm any more for him than the Italians. Our friend J. J. Wilder, of Cordele, Ga., will take note as it confirms his experience with them in the Southland. With us they swarm as badly as the Carniolans.

We said to Mr. Rahn that doubtless many would like to settle in that country, and asked what was the procedure to get land. The Ontario Government is offering favorable inducements to settlers. The land is sold at fifty cents per acre in 160-acre plots; and when a patent is secured, fifty cents per acre more is required.

Our Canadian readers will be interested, and possibly some on this side of the line; but remember the winters are bitter and cold; and if you are going to keep bees it is important to know whether you or your families can stand such cold, even if you feel that you can winter the bees.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.

J. M. BUCHANAN, in your valuable list, p. 432, you give dandelion as a yielder of nectar. Here it yields much pollen as well. Your alsike is "almost equal to white clover." I think it's better in the North.

My women folk are daffy on grapefruit, taking it regularly every morning. But they object to taking the juice through a straw, as given by A. I. Root, p. 442, if that means "without any bitter," for they specially relish the bitter. And they don't want any sugar with it either.

J. L. BYER, the name you cannot recall, p. 338, is G. W. Demaree, and right you are to commend his plan for prevention of swarming. You speak a little as if it is only to be used "if there are no signs of swarming at the time of the operation." If I am not greatly mistaken it works all right after cells are started, only you must cut them out, and the plan may even be used after swarming occurs.

YOU'RE right, Louis H. Scholl, p. 367, in commending "hives in pairs." If I am correct, that plan originated "in this locality," and you cannot urge too strongly that putting hives in pairs is practically spacing them further apart; in other words, by putting them in pairs you can exactly double the number of colonies on the same ground without at all increasing the danger of going to the wrong hive. [This scheme is all right.—Ed.]

WESLEY FOSTER, you say, p. 327, that with a rapid uninterrupted flow a one-inch top-starter and $\frac{5}{8}$ bottom-starter works well. Won't that middle space contain much drone comb? and do you think that makes a nice finish? Besides, if you don't use excluders the queen will come up to lay in that drone comb; and if you do use excluders the bees will delay sealing, waiting for the queen to lay in it. I'm much interested in your contemplated experiments.

MAY 29 finds colonies strong in number. Dandelion is just closing a busy career, and white clover is beginning to bloom. It was never more plentiful, but will it "honey," as the Germans say? The ground is so full of water that clover can hardly dry up for some time, if it yields nectar at all. Will the knowledge that ten supers apiece are ready for them spur the bees to effort, or will it utterly discourage them? [This is a year of promise all over the country for clover districts, so far as we have been able to learn. The fact that the bee-supply manufacturers are all busy is significant.—Ed.]

D. E. LHOMMEDIEU's plan for draining cappings seems good. Save the cappings in a vessel with solid bottom without giving them a chance to drain—all the better if considerable honey is with them—then take a stamper perhaps $2\frac{1}{2}$ inches in diameter, which is cut off square at the lower end; stamp the cappings into five pieces, and the honey will then drain readily from them when given an opportunity. The draining may be hastened by putting the cappings through a honey-extractor.

You say you don't catch on to my question, Mr. Editor, yet think the answer easy, p. 365. Glad if it puzzles you, if I can only get your attention to the sort of puzzles you're all the time handing out to your readers. If you had ventured an answer at all, like enough you would have said that if Smith gets 50 pounds of honey per colony, and Jones gets 60 pounds, then Jones has 20 per cent greater success than Smith, which may be quite right and may be very wrong, because of the loose statement in the question. If the two men produce the same kind of honey, 20 per cent is the right answer. But if Smith produces extracted and Jones comb, then 20 per cent is too small an answer; and if Smith produces comb and Jones extracted, then Smith is the more successful, according to general experience. I hope you've had so much guessing that you'll stop making your readers guess in every number of GLEANINGS when you let some contributor mention so many pounds of honey without specifying comb or extracted. And please, please, when mentioning foul brood, don't leave any uncertainty whether it's American or European. [When a correspondent does not tell whether he is referring to European or American foul brood or comb or extracted honey, we can not very well add the qualifying adjectives without danger of making him say what is possibly not true. It would be considerable trouble to write to every one, especially those who write only once a year or once in five years, to find out the specific thing referred to. About all we can do is to request our regular correspondents to say whether they mean comb or extracted honey or American or European foul brood, and we are making this request at this time. When, however, a correspondent describes his extracting outfit, or mentions it incidentally, it is hardly necessary for him to cumber up the article by adding the word "extracted" every time he refers to his crop.—Ed.]

J. E. Crane

SIFTINGS

Middlebury, Vt.

I do not remember that we have ever had a chemical analysis of pollen. If we have had, we should know better what to substitute for it where it is lacking. I am coming more and more to appreciate the value of pollen and its stimulating effect upon brood-rearing.

* * *

Mr. J. L. Byer, on page 248, says he is using hives made or painted by his grandfather thirty-two years ago still in fairly good condition. I think I can go you one better. I have double-walled hives in fairly good condition that I made and painted 44 years ago. My! how time flies!

* * *

"Bees that cluster on the outside of the hive are wasting their time," says Wesley Foster, page 614, Oct. 1, 1913. I don't feel sure about that. When honey is coming in freely a large amount of evaporating must be done, and I see no good reason why bees can not do this as well on the outside of the hive as on the inside—perhaps better.

* * *

Mr. Byer, page 246, April 1, thinks that there is more danger from disease among bees in the city than in the country. I believe he is right. You may find them in an out-building or in an attic, or, as I did on one occasion, in the upper story of a barn. There is also greater danger of contracting disease from bottles of honey that have been emptied and thrown on a refuse-heap or from broken barrels, or packages of honey left where bees can get at them.

* * *

A long time ago some one looked up at night and saw the stars, and said, "The heavens declare the glory of God, and the firmament sheweth his handiwork." And he was right, for they do. But it is just as true to-day that the hills and valleys, forests and fields, the birds, the bees, the flowers speak of his wisdom, goodness, and love. And it is just grand, these warm spring days, to go out in the midst of such surroundings and work with the bees. Let us not forget those who are confined to the workshop or factory, and thus rarely hear the song of birds or the hum of bees.

* * *

SPRING DWINDLING IN VERMONT AND ITS CAUSE.

Bees were considered in good condition in western Vermont on April 1; but the 15th of May will find many yards in rather bad shape, with some dead colonies, and

many greatly reduced in number—in fact, we have had more or less spring dwindling.

What is the cause? Largely, weather conditions, I believe. The weather station near by reports the coldest April in over thirty years—some nine degrees lower during April than any other April since a record has been kept in Burlington, Vt., thirty-one years. What was worse than the average low temperature was the large number of severe freezes we have had. Every week the temperature fell so low as to kill most of the unsealed brood except in the strongest colonies. On May 1st the mercury stood at 26 degrees, and on the 13th the mountains east and west were white with snow that had fallen during the night.

Another difficulty was the shortage of pollen. The cold killed many flowers, and the weather was so cold that little could be gathered from such as withstood the frost. Only strong colonies could keep up under such conditions. The old bees died off rapidly, and no brood-rearing could be carried on to replace them with young bees.

* * *

ENOUGH TO MAKE ONE MAD; MELTING HONEY AND PLUGGING TIN CANS.

"Be ye angry and sin not" is pretty good advice; for if there is any thing that makes a man act like a fool it is getting angry or getting drunk; but it is not always easy to control one's self. A while ago I was melting up some honey in five-gallon cans, and out of twenty or thirty cans no less than ten had holes in them—mostly nail-holes, I think. We melt in warm water; and if we set a can in that has a hole in the side, when the honey melts it will run out and the water run in, just as a jug of water turned bottom up will let the water out and air in—first one and then the other. It is not conducive to good nature to discover, when you come to empty the honey from your can, that it is half water, as we sometimes do. We try to find the holes before we put them in the water, but do not always succeed. But if we find them, what then? Why, just solder up the holes. Yes; but the moment the hot iron touches the can near the hole it will melt the honey before it melts the solder, and out it comes, making it impossible to make the solder stick. My! but wasn't it provoking? But it occurred to me at last that the holes could be stuffed with light cotton cloth with the point of an awl or dull knife. I tried it, and it was an entire success; and I note it down for the benefit of others.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.

Several requests are still on my desk for me to give my methods of swarm control, together with my spring management, with the divisible hives I use; but so far it has been impossible for me to write this up as fully as desired by these enquirers. This I regret very much, as I feel that, since we have been able to keep down swarming to a minimum in such a large number of apiaries, and for so many years, this information may help others to hold the bees in check to some extent at least. This year it happened that we had continued rains and bad roads to such an extent that we could not visit the apiaries for weeks, and some of them we could not reach at all during the entire spring months. The spring was exceptionally favorable for swarming; and as a consequence of our inability to make the necessary manipulations we lost many swarms. In a few yards nearer home, and in those near good roads, that could be reached at the proper time, the bees did not give us any trouble.

I am taking this opportunity to explain why this question has not already received my attention.

* * *

"COMB-HONEY SANDWICHES."

Little slabs of comb honey wrapped in clean paraffine paper with a nice colored band of paper around all, to hold it together, as the sandwiches are put up that are handed us at the railroad-station restaurant now, ought to prove a splendid way of disposing of a large lot of comb honey. It would be cheaper to produce the comb honey in shallow frames, cut it out into suitable pieces, wrap it, and hand it over to a customer. This is intended for the retail trade, of course. For shipping to market these "honey sandwiches" need only to be placed in cardboard cartons, with so many to a case, and the cases crated together for shipment. Pound packages of comb honey of this kind can be produced much cheaper than pound sections; and although they may not take the place of sections where section honey is especially demanded, yet I do feel that they would find a good demand with those people who care more for the honey they get for their money than for the appearance they pay for in the section honey.

* * *

A VALUABLE ARGUMENT.

Some time ago I outlined an experiment which could be easily made to determine

which would be the cheaper to use, syrup or honey. The test is made by placing on the table two equal-sized tumblers and filling one with honey, the other with syrup. Enough of either is to be spread on the bread with which it is eaten, to "give one a good taste of either the syrup or the honey." Close observation will reveal the fact that it takes a good deal more of the cheaper-priced syrups to "give one a good taste" than if honey is used. It will be found that the use of honey at a higher price than the cheap syrups will go further, and, consequently, be the cheaper in the end. And not to be forgotten is the fact that the honey is by far the more healthful. Its constant use will not give any evil effects like the many glucose and other corn syrups on the market. We have recently used a small pail of the lightest-colored syrup now on the market; and while it "tasted" quite good for a few meals, for a change, we do not care for it any more. We simply tired of it from the effect that the glucose and corn syrups have on our systems.

* * *

OUR FLOOD LOSSES AND THE PROSPECTS.

A large number of our friends have sent me encouraging letters since we experienced the heavy flood losses in the Brazos River Valley last December. These letters are certainly appreciated. We feel more encouraged to go on with that which we still have, and we feel the loss much less.

The weather the past winter and this spring has been one continuous time of excessive rainfalls. Since October of last year there has been in this neighborhood 29.74 inches of rainfall, and it has rained heavily all day today. This is a very exceptional occurrence for this part of the State. Other parts of Texas have fared still worse, while a few localities did not suffer from an excessively wet season. Indications are that there will be still more rain for some time, and we can not tell when the end will be.

Roads are almost impassable, and work in the outapiaries will be impossible for some time. Our work is being delayed considerably. But the prospects for a good honey crop in this part of the State are excellent so far, although it may prove to be too wet a season for best results. We can never tell, until we have made our crop, what it will be, as some seasons are too dry and others too wet.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

March and April have paid in full all of the days borrowed from May. The closing days of the month were of a variety that would have fitted the season better in the early spring. Fog, fog, fog, has been the complaint of the beekeeper, and justly so, for it has done no less than cut in halves the crop of sage honey.

* * *

"BEARING" THE MARKET INSTEAD OF "BULLING" IT.

The editor of the *Western Honey Bee*, in the May issue, throws a bomb-shell into the honey market that will not soon be forgotten by the beekeepers of the State. It is hard to imagine any thing that could have been done that would have depressed the honey market to the extent that the article spoken of above has done. The beekeeper is always more or less prone to be nervous over the markets, and such reports almost scare them to death. I have heard year after year just such reports, but, as a rule, from representative honey-buyers; but this, coming from the pen of the very man above all others who should bull the market to the best of his ability, has caused profound indignation among beekeepers of this section. The editor of the *Western Honey Bee* is a personal friend of the writer, and his knowledge of the bee business is fully recognized; but it is my opinion that he has made a mammoth mistake in giving such a pessimistic report of the market, especially when every condition locally was in favor of a steady market, at least, rather than against it, so far as the outlook for sage or other white honey is concerned. The eastern output at that date had not yet begun, and there was a chance rather for a shorter crop than last year if we follow the trend of events in the past. The few carloads of honey in and around Los Angeles is not going to injure the market to any great extent if there is an outlet elsewhere.

The writer has followed the bee business 18 years in the East, and is in position to say that it is indeed very seldom that one honey crop follows another the next season in the same locality. If I may venture a prediction, the East will not have as large a crop this season as last. One of the unpardonable things said in the above article is the following quotations: "And let us welcome a period of low prices for honey as wonderfully stimulating to its consumption;" again quoting, "When two or three

sections of good comb honey can be bought by the working man for a quarter, and when the tin pail can be filled at the grocery with a gallon of good extracted honey for 50 or 60 cents, then we can do business; there will be a demand that all the beekeepers of the coast will be unable to supply." The last of these quotations is absolutely true, for the reason that, with honey at the price named, there would be few beekeepers to supply any demand that such conditions might bring about. Honey in its purity is a luxury, has always been so, and always will be, from the fact that the bee business is uncertain at the best, so much depending on the vagaries of nature, the loss by disease, and at the present time the expense of equipping for the business. A man can not afford to pay the present prices for hives and equipment, nor even for bees, and sell honey at such prices. It would be the ruin of the industry from hive-factory down.

I see no reason why the beekeepers of Southern California should sacrifice the first crop of sage honey obtained for three years when, on the very face of the facts, the crop cannot be a large one. Raising honey to feed the poor is folly.

[There is a chance here for an honest difference of opinion as to the best policy to pursue. Perhaps it would have been better to have kept quiet; on the other hand, if conditions are as the editor of the *Western Honey Bee* reports (and there are some grounds for his fears) it would be folly to put prices too high, for the result later on would be a fearful slump, smashing the market into smithereens.

We agree with Mr. Chadwick that it is seldom that one good year is followed by another good one. We do not believe that we shall have as heavy a crop of clover in the East as we had last year. If clover falls down even a little it will boost prices in the West, without question. Undoubtedly our policy at the present time should be optimistic until we can learn what the East is going to do as well as some parts of the West. A few carloads, either of comb or extracted, here and there, left over from last season, should not depress prices too much. For the present, at least, it is wise for us to "look and listen." Prospects for a clover crop are good. But prospects have been just as good before, with practically no honey later.—Ed.]

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

SURPLUS INCREASED TENFOLD, ETC.

I suppose I have been keeping bees in a crude form, or in the old-fashioned way, for I have allowed my bees to swarm naturally, hiving all prime swarms, one in each empty hive, and doubling up after swarms till a fair colony was made. In this way I have secured an average of fifty pounds from each old colony in the spring, and supposed I was doing fairly well until a few weeks ago an old man who had been making a specialty of beekeeping for thirty years told me that the surplus from any apiary could be increased tenfold by allowing only *one swarm* from each colony. Now is that right?

Without doubt the statement is exaggerated. It would seem that you can safely count on fifty pounds of comb honey in a good year from each good colony, and allow them to swarm just as they please. With one hundred good colonies, that would amount to 5000 pounds. Now by allowing only one swarm from each—which any active man could easily manage—if that amount could be increased tenfold, or to the amount of 50,000 pounds, the crop would be worth, at ten cents a pound, \$5000. Perhaps this is something in which location "makes all the difference in the world;" and if so it would seem that the most of us must claim a location much inferior to that in which this specialist beekeeper lives.

However, there is *something* in what you were told regarding restricting your swarms to only one from each old colony in the spring, where natural swarming is allowed. In my early years I allowed the bees to swarm as they desired; but I soon found out that, if any after-swarm left the parent colony, all prospect of any surplus honey from the parent colony went at the same time, the prime swarm giving all the surplus, as the after-swarm would do no more than to build up for winter, as in the case of the old colony. But by limiting the old colony to just one prime swarm, the old colony, if rightly managed, gives fully as good a yield in surplus as the prime swarm. In this way the colonies may be doubled each year, and the surplus doubled as well.

With the bad wintering which came to the bees along in the eighties, this doubling during the summer was quite a comfort to the one who found his losses each winter to average fifty per cent of what he had in the fall; while an average of 100 pounds of comb honey for all of those ten years of the eighties gave a zest to the beekeeper's life not found in the fifty-pound yield. But the days of swarms to be hived in separate hives have seemingly passed by with the most of our practical apiarists. By taking this swarming matter in our own hands, swarms

can be made at pleasure, or swarming be done away with, and a yield above what could be done by natural swarming brought about. By retarding the desire of the bees for natural swarming through putting on a hive of combs until the yield is about to come on from the flowers which give us our surplus crop, and then placing this upper hive of combs, now partly filled with honey, by way of exchange for the lower hive of brood, and then shaking all the bees from their brood and the hive containing it, so that they run in to what was a few minutes ago their surplus apartment, great results can be obtained in the sections, even in a poor season. At time of shaking, supers of sections are put on, and thus the sections become the storage room, while the honeycombs the bees were eagerly storing in a few hours ago are being emptied to give place for the eggs the queen will be depositing in the cells as fast as the honey from them is carried above. And that which is coming in from the fields, mingled with that which the bees are carrying up from below, causes the sections to be filled as by magic, and all swarming is done away with.

WHY BEES DO NOT LOSE THEIR STINGS WHEN STINGING OTHER BEES.

Another correspondent wishes me to tell why bees when stinging other bees do not lose or leave their sting, the same as they do when stinging the beekeeper. From what I myself have seen, a slight prick is all that seems necessary to kill a worker-bee, the sting not entering far enough so that any of the barbs on the sting enter the wound. This does not seem to hold good in the case of the queen; for on several occasions where I have had queens stung in the thorax, where the wings, legs, abdomen, or head is attached, the sting was universally left. On the other hand, most of those who have kept bees for any length of time have noticed how quickly a colony into whose hive a small runaway swarm has come will dispatch that swarm without leaving a sting in a single bee. An old beekeeper once told me that a bee had to strike a person, as does a hornet, in order to sting, otherwise she would not sting at all. This hardly holds true; but she needs the impetus motion gives her, or something to hold her to the work, so to speak. Certainly a "laying hold" is necessary for the bees to drive the sting into any thing so that it will penetrate beyond the barbs that are on it; and when penetrating to such a depth, the sting must be left.

GENERAL CORRESPONDENCE

GOOD COMBS; THEIR VALUE, AND HOW TO PRODUCE THEM

Nailing and Wiring Frames; Second Paper

BY ARTHUR C. MILLER

In a previous article I tried to show the loss in using poor combs, and how some seemingly good combs are not as good as they appeared. In this paper I will give the fundamental steps for securing combs of the highest quality in the most economical way. The methods I shall describe are those I use; and I describe them because with them I get the desired results. There may be better or more rapid ways, and other persons might use my methods more rapidly than I do. They are not new unless, perhaps, in some minor things, nor are they of my own invention save in two or three parts; but the union of them all is mine.

Before I describe the methods, I want to lay emphasis on the fact that good results are due to the attention to every detail, to having every thing right, and doing every thing as thoroughly as possible.

First, buying the frames. Get only good accurately made frames—those that are made of good lumber, and cut with sharp saws. I say, "cut with sharp saws," because some manufacturers are not particular, and send out frame stock with feathers enough on it to clothe a big flock of poultry. And those fuzzy edges hinder and prevent good work. At present prices every frame should

be like fine cabinet work; and if they are not, then try some other maker.

When good frame stock is secured, the frames must be nailed up *square*, and with nails which will hold them so. For accurate and rapid work a "jig" is indispensable. Beekeepers usually say "forms;" but by either term it is a device for holding the parts of the frame firmly in proper position while being nailed. There are all sorts of devices, but I prefer the simple one shown in Fig. 1, with an unnailed frame in place. It is a plain, thoroughly seasoned straight-grained white-pine board, with four cleats on the front, as shown, and two across the



Fig. 1.—A. C. Miller's frame-nailing jig.

back—the latter to keep it stable when on edge, leaving the hands free for hammer and nails. No buttons or springs are needed if it is *accurately* made and the frames accurately cut.

In nailing I put two nails through the top-bar into each end-bar, and one through the end-bars into each end of the top-bar. This is the opposite of the manufacturers' instructions; but please remember I am telling the way *I* work. My way is more rapid; and, from experience with both ways, I like it better. I don't have frames break like the one shown at Fig. 2, which was nailed the manufacturer's way.

Rapid nailing of frames demands system. The different pieces should be stacked in piles, each kind by itself, and all pieces of

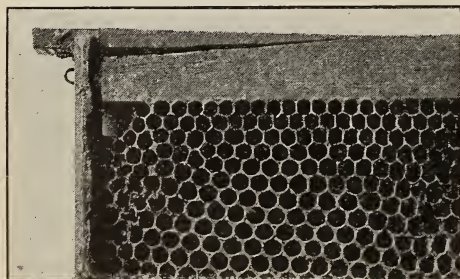


Fig. 2.—Broken frame that was nailed through the end-bar to the top-bar.

each sort the same way, and all piles always in the same place on the bench. The nails should always be in one place, and the hammer should be of the right weight to drive the nails with the least number of strokes, and at the same time not so heavy as to bend them. When every thing is so arranged, work is rapid, the procedure being as follows: The two end-bars are put into the jig, and then the top-bar and the four top nails driven; then the one nail in each end. The bottom-bar is next inserted, and two nails driven in one end only, the other end being left unnailed. Some persons use only one nail in each end of bottom-bars; but I believe it poor economy. The frame is then removed from the jig, and the frames are piled in a convenient place for the next operation, which is putting in the staples. I nail until I am tired or the pile gets inconveniently high, and then change off to stapling.

Preferably (because more rapid) the staples should be put into the end-bars before the frames are nailed up; but the staples best for the purpose are so long that they project through the end-bars; therefore stapling is done after the frames are nailed. A metal block is used for stapling. It is like the wooden one which the manufacturers supply, except that it is a little longer. Try it and you will soon see why it is better. As fast as stapled, the frames are stacked with the unnailed ends of the bottom-bar,



Fig. 3.—Winding the wire on A. C. Miller's wire-stretching reel.

all in the same direction, and ready for the next step, which is wiring.

Wiring is a fine art. If one may judge by the many methods illustrated and described in times past, very few persons know how to do it in a rapid way or with the best results. Unless the wiring is thoroughly and properly done through every stage, speed is impossible, and satisfactory combs will be the exception.

The first step is stretching the wire. Wiring from the spool is an absurdity. The method I use is best shown by the photograph at Fig. 3. The big spool of wire is mounted on a pivot on which it will turn by a slight pull on the wire, but will not spin and cause the wire to kink and snarl, and this pivot is held in the bench vise. The reel, or stretching-board, is shown in detail in Fig. 4. This is pivoted on a bolt through the front of the bench, and is rotated by the right hand while the wire slides through a greased cloth in the left hand. If the spool of wire frictions on its pivot properly the "drag" will be uniform and all the wires

will be wound on the stretching-board with uniform tension.

When wire for about fifty frames is wound (count as you wind), the wire is made fast to a tack on the stretching-board, and severed from the spool; but *don't* let go of the end leading to the spool. Wind the surplus back and make the end fast to a tack in the end of the spool. You will not forget this precaution more than once, I assure you.

A word about the

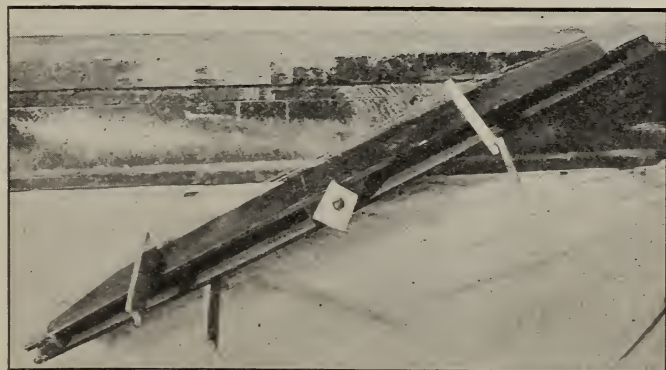


Fig. 4.—Stretching the wire on the reel.

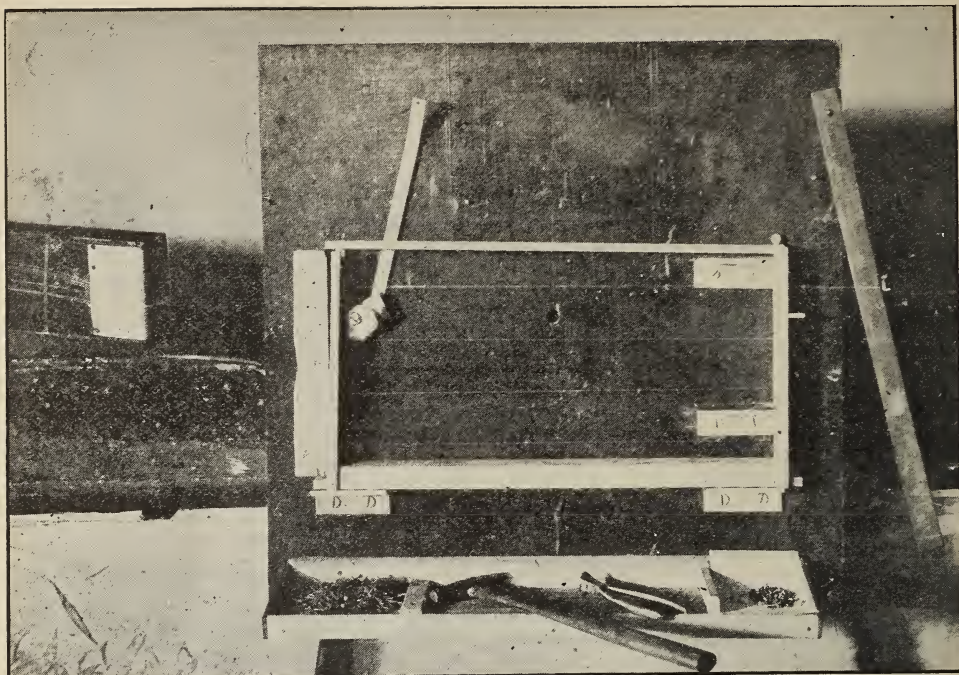


Fig. 5.—A. C. Miller's frame-wiring clamp.

wire, and handling it. Be sure that the wire you buy is new and bright. If it is brown or rough, send it back, for it has begun to rust and will be rotten, and break. Wipe machine oil or vaseline over the wire on the spool when received, then it will keep until you need it. I keep mine wrapped in an oily paper when not in use. In reeling it, the oily cloth keeps the salty moisture of the fingers off, assures a greasy coating to the wire, and also prevents sore fingers. Take pains to avoid kinks at all times. A kinked wire will break, and a broken wire costs heavily in time.

When enough wire is on the reel—fifty or sixty wires are all that stretch rapidly and easily—stretching begins.

A table-knife or putty-knife is slid under the wires on one side, the wires lifted slightly, and a stick pushed under—I use a frame end—and the operation is repeated on the other side. Then the sticks are turned on edge, banjo-bridge fashion, other sticks inserted nearer the ends of the board and turned up, and wider sticks used until the wires are as tight as safe. Try until you find the limit. In a few moments the sticks can be turned down and removed, and the wires will be found to lie nearly straight with little or no tendency to curl when cut. Soft string is wound twice around the board near each end, and also at each side of the

center, where the pivot is, and tied tightly. The wires are cut by slipping the scissors in the recess at one end, as shown in illustration No. 4.

The L-shaped hooks remaining on the wire ends are then all cut off, leaving the wires as straight as needles for threading through frames. The slight amount of wire wasted is too small to consider, particularly when we view the results. I use rubber bands to hold the wire instead of soft string, but either will do.

The stretching-board is made of two half-inch boards, four inches wide, nailed to blocks as shown. The ends are covered with tin to prevent the wires cutting in. Headless nails or conical-headed tacks (see No. 3) are driven in the ends to prevent the wire slipping off while reeling. The board is 43 inches long, and the wires, after cutting and trimming, are 87 inches long—just long enough for easy work. Don't try to save on wire by using shorter pieces. You will lose in time and temper, and get poor results. With the wires straight, and the "spring" and much of the stretch out of them, we are ready to begin threading them into the frames. To do this rapidly, and to make the wires so tight they will "sing," we must have a good jig to hold the frames firmly. Mine is shown in illustration No. 5. It consists of a piece of heavy plank, old,

straight, and free from tendency to warp, supported on legs, and having at its lower edge a shelf for nails, tacks, and tools. The various cleats and angle irons are so located as to furnish support at the right places, and not interfere with threading the wire, and yet hold the frame firmly without any springs or other contrivances. The various parts have been outlined with white to show them more plainly. The board is stained dark for the sake of the eyes, and, incidentally, wires are seen more easily.

The frame is put into the jig with the bottom-bar up, and the unnailed end to the left. The reel of wire is conveniently at hand with the looped end of the wires toward me. A loop is seized, and the wire pulled out.

When the ends are almost free the other hand grasps the wire close to the ends, and both ends are started through the middle pair of holes; for as long as one's head is tipped to one side, it is as easy to start two wires as one.

The ends are then seized with the other hand, *both* wires pulled across, and the process repeated at the other end of the frame.

As the wires are drawn snug, the upper one (that nearest the bottom-bar) is dropped while the other is laced back through the holes next to the top-bar, and then the other wire is treated likewise. As the end of the latter is drawn through the last hole, it is made fast about the two headless nails on the lever at the right by wrapping, as one wraps a rope about a cleat. Then a 2½-oz. tack is put at the top and bottom opposite the ends of the angle irons, as indicated, and these tacks driven in, because the wires are to be wound firmly about them. The lower end is wound completely about the nearest tack twice—that is, three sweeps of the hands; more is too much; less is not enough: the wire cut, and the tack driven home. I cut the wire before driving the tack, as I do not appreciate sharp points of wire which are left if cut after driving. I use and prefer cutting-pliers rather than scissors, as they are handier, and one is less likely to cut the wire at some other place at the same time.

The wire is now ready for tightening. The lever at the right (which is to save fingers rather than for power) is seized by the right hand and pulled firmly to the right, while the left hand "walks up" the wires in the frame much as shown in the dealers' instructions for tightening wires. The first wire is pressed down, then the second, then the third, while the lever takes care of the fourth and all of the slack. The process is repeated three or four times.

The left-hand end-bar is thereby pulled in at the free end one-half inch, until it rests against the cam, as shown in No. 5. The wire is pulled from the nails on the tightening lever, drawn snug, wound about the upper tack, cut, and the tack driven home. The handle actuating the cam is then moved until the end-bar is out to its place. The cam handle (a springy piece of iron) is caught behind a nail placed for the purpose, and the free end of the bottom-bar is nailed.

All the wires sing when struck, like the strings on a banjo. There is no stretch nor give to them under any load they will get while combs are building, and the frame is absolutely square. They are ready to hold foundation properly.

It has been asserted that the lowest wire will be the tightest; but the difference between it and the others is not appreciable. The description is necessarily long, but the actual work is rapid. Rarely is a wire broken; but when one is, it is cut out and a new one put in. Never try to mend or piece it.

As to time used in the operation, I nail and staple 35 to 45 frames an hour. Winding and stretching the wire for fifty frames takes about five minutes. Wiring from the time a frame is picked up until it is laid on the finished stack is just 1½ minutes, and I regularly do 30 an hour, including stretching wire, moving finished work, and getting a fresh stack at hand.

I have seen no process to equal it in results, and very few to approach it in ease and speed. I am now nearly half through the third thousand fixed by these methods.

Putting foundation into such frames is a swift and easy matter, and will be explained and illustrated in another issue.

Providence, R. I.

ARE BEES ATTRACTED BY THE COLOR OF BLOSSOMS?

BY JAMES A. GREEN

The article on the color sense of the bee, page 106, is extremely interesting to me. The experiments narrated therein seem to prove fully that bees have at least some

perception of color. But I cannot agree with the author when he concludes with the statement, "The old theory that the colors of flowers are designed to attract the in-

sects . . . has been successfully vindicated." Granting that it has been proven that bees can distinguish some colors, it does not by any means follow that it has been proven that the colors of flowers are designed to attract bees or other insects, or, in fact, that they have any attraction for them. I have never been able to reconcile myself to this theory, although it is one that is almost universally accepted by botanists.

It is but a forlorn hope to attack a citadel so strongly garrisoned by the wise ones of the world, but I will at least throw my little pebble. I shall not attempt to make an exhaustive review of the subject, but will point out one or two particulars in which it seems to me the theory does not agree with well-known facts. One of these is that many of the most beautifully colored and elaborately marked blossoms seem to have no attraction for bees, which visit them but little or not at all. The counterpart of this is that the blossoms most visited by bees are usually very inconspicuous in their colorings and markings.

The popular idea on the subject of honey-gathering is well expressed by the poet who wrote of the bee that "gathers honey all the day from every opening flower." Only the practical apiarist knows how comparatively few are the varieties of blossoms that are of much value to the bee. While bees work to a greater or less extent on a great number of flowers, those that are most attractive to them, and from which the world's supply of honey is gathered, do not make a very long list. What are the principal sources of honey supply? In the United States and Canada, white clover, sweet clover, linden, heartsease, buckwheat, sage, alfalfa. All of these, with the exception of alfalfa, are white, tinged with low tones of green, yellow, and red. White clover and heartsease are greenish white, more or less tinted with red. Sweet clover and buckwheat are greenish white. Linden, or basswood, is yellowish white.

The sages and mints in general, such as hoarsemint, pennyroyal, catnip, etc., are, as a rule, very modest in their coloring. So are willow, orange, raspberry, cotton, mangrove, catclaw, mesquite, locust, and other members of the acacia family. So too are the heather of Europe, the campanilla of Cuba, the logwood of the tropics, and many other plants of greater or less renown as honey-producers. I might go on and extend to great length the list of flowers that are favorites with the bees, yet are neither brilliant in hue nor conspicuous in their markings.

We are told that blue and violet flowers

are preferred by the bees; yet among the blossoms that are good yielders of nectar, and so more attractive to bees, red tones are far more common than blue ones. Alfalfa, the blossoms of which range in color from light blue to deep violet, is the one conspicuous example that comes to my mind of a blue blossom that yields much nectar. But the bees do not visit the deeply colored ones any more than the light ones. Neither do they visit flowers of other tints. The blossoms of an apple-orchard vary from pure white to a deep pink; yet the bees show no preference, and the white blossoms of the Ben Davis are as well fertilized as the pink blossoms of the Winesap. But, according to the experiments of K. V. Frisch, bees cannot distinguish red, so that markings in this color or variations in its tints are not to be considered, even according to the color theory, as influencing the attractiveness of blossoms to bees; and all blossoms so colored or marked are to be considered as of neutral tint, so far as bees are concerned. So alsike clover, with its deeper tints of red, is no more attractive to bees than its white cousin, and the still deeper tones of red clover are not in the least attractive to bees until its flower tubes are filled nearly to the brim with nectar.

Can it be possible that the blossoms have been working in different directions in their development? Have some adopted bright colors and varied markings to attract insects while others have followed the more practical plan of rewarding their winged helpers with generous supplies of nectar instead of painted promises?

If so, the latter would seem to have the best of it, so far as the bees are concerned.

Grand Junction, Col.

[Our correspondent is usually very accurate, and it is seldom that we can pick a flaw in his logic or his facts; but on this proposition, at least, we believe his facts *support* rather than disprove the old theory that colors are designed to attract insects rather than otherwise.

Our correspondent makes the point that blossoms most visited by bees are *usually* very inconspicuous in color and markings. In this he is absolutely right. If that is true, does it not contradict the color theory? Not at all. Flowers have two ways—yes, and we might add a third—of attracting bees and insects so as to bring about cross-pollination. First and foremost is nectar; next, color; third, pollen. Sometimes the flowers employ all three methods. Where cross-pollination is very important we sometimes find the complete combination. The blossoms that yield the largest amount of

nectar are very often inconspicuous in their colors and markings. The more abundant the nectar, the less color; but in a few cases, at least, nature seems to furnish a double attraction—color as well as nectar. Alfalfa, a few varieties of apple-trees, orange trees, red and crimson clover, are conspicuous examples of these. A list of blossoms that attract bees only by nectar might include such plants as the sages of California, basswood, raspberry, and the palmetto; but most nectar-yielding blossoms that yield honey in commercial quantities have a little color. Conspicuous among these are white and alsike clover: and right in this connection our correspondent refers to the white-colored blossoms of the Ben Davis and the pink blossoms of the Winesap apple-trees. He goes on to say that the one is as well pollinated as the other, notwithstanding one has more color than the other. But, mark you this fact: The Ben Davis is largely a self-pollinating tree, while the Winesap is almost wholly dependent on the agency of insects, particularly bees. It has been positively demonstrated that the Winesap can not be produced without bees. Does this not show that color is, after all, a factor? When a tree or plant is self-sterile to its own pollen it must put out, in addition to nectar to attract insects, color; hence we shall probably find self-sterile trees and plants furnishing nectar having more color than the self-pollinating kinds.

Flowers that are large and showy in color and markings usually have little, or no nectar. What's the "show" for, then? To get the bees to visit and cross-pollinate them. A preponderance of color or nectar is for a purpose—to mingle the pollen. Again, plants that are wholly pollinated by the wind, and hence do not require the help of insects, are totally without color except the color of the plant. An example of this is the grasses.

Darwin has shown how nature constantly adapts itself to conditions. As he has pointed out, there seems to have been a constant progress in development all down the ages. In the line of this wonderful adaptation we find papilionaceous flowers, like peas, beans, and locusts, furnishing convenient doorsteps on which the bees may alight to get the nectar which the plants offer. We also find that most of the blossoms are adapted to the size, capacity, and tongue-reach of certain classes of insects, notably the bees.

In this connection, red clover with its long corolla tubes might seem to be an exception; but it is a very marked example of how nature furnishes color to attract bees. The corolla tubes are so deep that the common honey-bees and even the humble-bees cannot reach the bottom of them. When there comes a drouth, nature temporarily shortens these corolla tubes; but all the time, she puts out the brilliant color and the sweet aroma from the nectar, which the bee may or may not be able to get. We have seen the honey-bees time and again go over the red-clover blossoms trying to reach the nectar, and yet apparently fail. But some blossoms will furnish them nectar, and it is worth while for them to go over *all* the blossoms. We venture to say that, if the red clover had shorter corolla tubes, there would be less color, and hence less need of putting out a showy blossom to attract bees. We find corroboration of this in white and alsike clover. They have very short corolla tubes, and a great deal less showy color. White clover is the most important honey-plant, and it is much less conspicuous in color than the alsike.

If our correspondent will go into this matter very carefully he will find that nature has "method in her madness;" and the more we study this, the more we shall see the evidence of this "method."—E.D.]

PREVENTION OF ABSCONDING DURING TREATMENT FOR FOUL BROOD; ALSO BLOCKING UP TO PREVENT SWARMING

BY WM. W. CASE

I notice what A. F. Wagner says on page 137, Feb. 15; also what the editor says on page 123, same issue, concerning bees absconding during treatment for foul brood.

I think you will both find that the cause of absconding is demoralization and fear of starvation. I don't think you will have any trouble in keeping treated colonies on full sheets of foundation (at least, I don't), if the treatment is done, as it always should be, just at night, on account of robbing, and

hived on half a dozen sheets of foundation placed in one side of a ten-frame hive and a common baking-tin about 1½ inches deep, 3 to 4 wide, and a foot or more long, placed in the other side. Sprinkle cut straw half an inch deep in the bottom, and put every drop of a rich sugar syrup in the pan that the colony can take up. If very sultry next morning, shade the entrance and place ¾-inch blocks under each corner of the hive.

If field stores are not coming in plenti-



A part of the apiary of E. A. Duax, Chippewa Falls, Wisconsin, roof of bee-cellar in the background. The yard is sheltered on the west and north by a cedar hedge.

fully, in 48 hours very quietly (so as not to break the wax curtain) refill the pan with $\frac{3}{4}$ the former quantity of syrup, and I think you will say farewell to absconders. A division-board reaching within an inch of the bottom may be placed between the feed-pan and the foundation, but it is not necessary, and I do not always do so. Any kind of feeder may be used in place of the pan if it may be refilled without breaking the cluster.

Absconding swarms are hardly likely to carry the disease, as they usually abscond because they are *not* gorged with honey; but in diseased sections of the country all swarms not known to be absolutely healthy should be hived on full sheets of foundation, and left the four full days before being disturbed. (See five principles of treatment, June 15, 1913, page 406.) One frequent cause of absconding is that shaking out has been done so rapidly that the bees do not have time to fill their honey-sacs. Considerable has been said concerning blocking up hives to prevent swarming. Will it work? Yes, sometimes; and when the subject of swarming is fully understood, perhaps it possibly can be made to work at all times.

In 1913 our clover flow was light in central New Jersey, not many colonies fill-

ing more than one super, and many not that much, down to nothing. In clover, 70 odd colonies cast two prime swarms. The first week in August started with a good buckwheat flow, and the second week the same, accompanied by that warm, sticky, sultry condition so well known as setting bees swarming crazy, and things began to develop rapidly. On August 14 one swarm issued, and two on the 15th, with the whole apiary getting ready.

Fifty were immediately placed on inch blocks, and not another swarm issued. Several apiaries within a few miles swarmed one hundred per cent, or more. Mine swarmed less than seven. I have practiced blocking up more or less for several years, always to my advantage. I do not pretend to say that, with out present knowledge, this can always be accomplished, especially during June, with its bright, glad, flourishing days, when nearly every thing, including bees, takes life at its fullest, and when the only fly in the ointment of content is also the sultry, sticky June nights when no real live person can sleep with the windows down, and perhaps we may then begin to realize what full ventilation may mean to an overcrowded colony of bees at the height of the normal season of increase, so strong-

ly developed in all nature, and confined heretofore in an airtight box, and tortured all day by a nearly tropical sun.

I believe that, with just a little more knowledge on the subject, comb-honey production will soon be less handicapped by

swarming than is even now the case with apiaries run solely for extracted honey, and often wonder if there would be room on this great earth for just one more new and perfect hive.

Frenchtown, N. J.

A WELL-LOCATED APIARY, BEE CELLAR, AND HONEY-HOUSE

BY E. A. DUAX

[The following article should have appeared in our May 1st issue, but was left out by an oversight. The first picture mentioned is that shown on the cover, May 1.—ED.]

We have a two-story honey-house, 14 x 28 feet, located very near our apiary. The rear door leading to the beeyard is at my left in the picture (cover picture May 1). From the beeyard it is down hill, which makes it easy to run in heavy supers filled with honey to be extracted. The second story is used for a store room, where five tons of honey were stored last fall.

It has a rubberoid covered roof, which makes it an ideal place to store honey. We raise the honey to the upper story with a home-made elevator run by a gasoline-engine which also runs the extractor. We can elevate between 700 and 800 lbs. to a load. Beeyard is sheltered on the north by a cedar hedge.

The building at the extreme left, of which you can just see the roof, is the one shown at the left in Fig. 1. The roof shown in the rear is the bee-cellar. It is built on a side hill facing the south. It is very handy for putting bees in and taking them out, for there are only two steps to come out or go in. Two men with a stretcher can handle 75 colonies in about two hours easily.

This cellar is not used for any thing but

wintering the bees. The cellar ceiling has ten-inch joists lined on the under side with paper and matched lumber, then about 6 inches of sawdust; or four-inch dead-air-space floor of matched lumber, and about 7 inches of sawdust on top of it, which makes it frost-proof. It has a 10 x 10-inch ventilator reaching within ten inches of the bot-



E. A. Duax and family in front of their home which the bees helped to build.

tom of the cellar. I have also an intake ventilator 60 ft. long, leading to my bee-cellar, 6 ft. deep inground, which works finely, keeping temperature about 42 degrees Fahr.

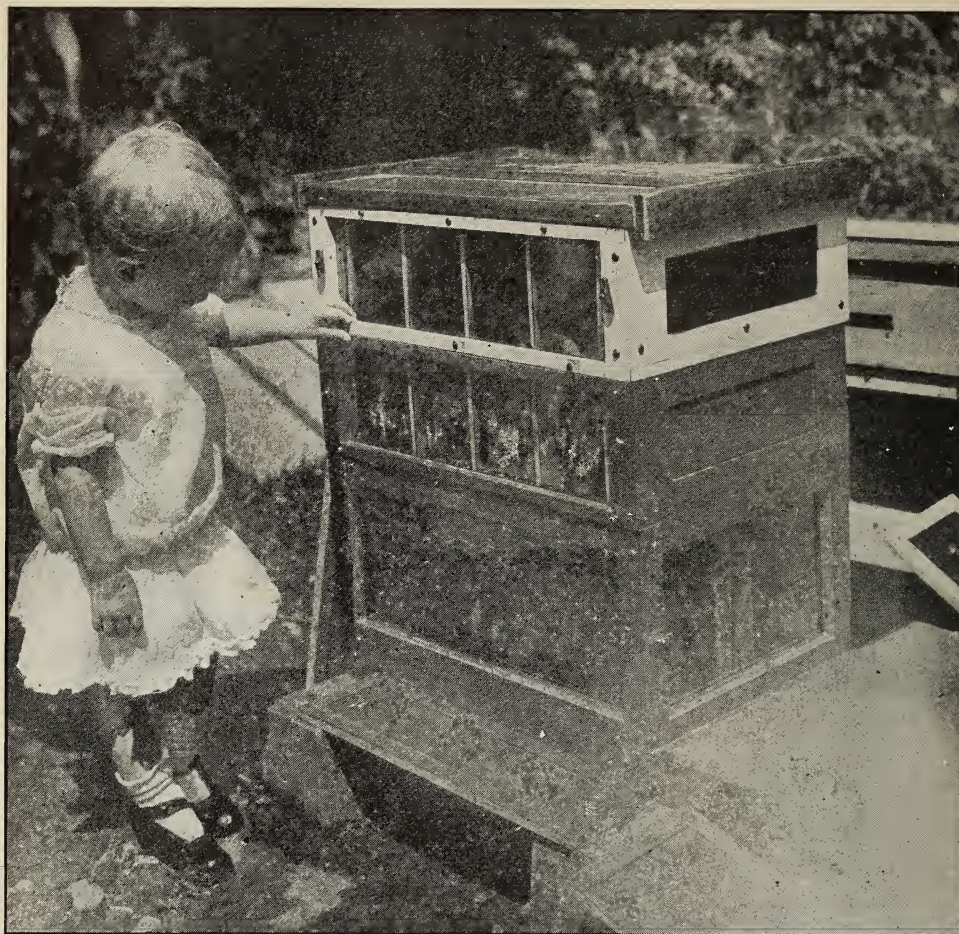
Chippewa Falls, Wis.

BANKING AND BEEKEEPING

BY J. J. MOYERS

I am sending two pictures together with a newspaper clipping which appeared in the *Nashville Tennessean* and *American* a few months ago. I thought that perhaps you would like to use these in the news columns of *GLEANINGS*.

My occupation is banking, which duties I perform above all. In place of being an athletic fiend I am a bee fiend, from which I obtain profit as well as pleasure. I have 85 colonies, all in ten-frame hives, two and three story, also two apiaries which are



J. J. Moyer's Observer observing bees in an observatory hive. Mr. Moyer and his family are shown in the cover picture for this issue.

located within the city limits, and then come my two observation hives, one of which is kept the year round in my dining-room window, and which is my daily study. In these two hives I have the golden Italians.

I am trying to get the people to take more interest in bees in this section as there is not a better location in the State.

Fayetteville, Tenn.

[It is doubtful whether there is a class of professional or business men not represented by some enthusiastic beekeeper. Our correspondent is certainly an enthusiast, and we feel sure that he finds his work in the bank less tiresome because of his hobby.

Our cover picture for this issue gives a very good picture of Mr. Moyer, his family, and his bees.—ED.]

NOTES FROM GERMANY

BY J. A. HEBERLE, B. S.

The article by H. H. Root in the November 15th issue, page 799, on putting foundation in brood-frames, is very interesting. The illustrations are so clear that a beekeeper who has had only a few lessons may easily understand it.

I use no grooves with wedges to hold the foundation. I solder it on the top-bar with melted wax. If the wax is warm enough it will hold as much weight as the foundation will stand, but will not stick well if it is too cool. It should be just warm enough so

that it will not melt the foundation. A board is used about $\frac{1}{4}$ inch smaller than the inside of the frame, and thick enough to hold the foundation in the middle of the top-bar. On the two long sides of the board is nailed a thin lath a little longer than the frame, and extending about one-half inch over the sides. The foundation is laid on the board and the wired frame upon it, care being taken that the sheet touch the top-bar the entire length. Board and frame are firmly held in the left hand with the top-bar down, and so inclined that the melted wax poured in the upper corner will run down rapidly. It is better not to pour too much wax on one place, as there is danger of the foundation melting at that point. Keep the hot wax constantly pouring out in a thin stream. We have a handy alcohol-lamp with a spoon that can be removed, which is used to melt and pour the wax on the top-bar. When the spoon is removed, the wire-imbedder may be heated on the flame.

After one side of the foundation is fastened, the board is removed and the frame held in the left hand in such a position that, with the right hand, melted wax can be poured on as before. The lamp is allowed to burn, and the flame is regulated to suit. Lamp and spoon are used as one piece. The spoon is removed when wiring foundation, and the imbedder put in its place. The one I use has V-shaped grooves in the teeth so the wheel can't slip so readily. Between the handle and the center of the wheel there is an extra-heavy metal part that helps to keep the teeth at the desired temperature.

UNCAPPING-FORKS.

I do not use an uncapping-knife, but a fork constructed for that purpose. I can uncap as rapidly with it, because I am not used to the knife. No warm water is needed.

A NICE CHRISTMAS GIFT.

Queen Victoria, of Sweden, gave the Crown Prince (her apparent) a Christmas present of a quadruple hive (four hives built in one), with roof and base, together with the frames and tools necessary. It was made in Paden. She sent a Swedish beekeeper to Baden last summer to learn how beekeeping is carried on, and to see what is being done there to foster and to advance the interests of beekeepers. Her Majesty, no doubt, has risen in the estimation of all beekeepers.—*Die Biene u. i. Zucht*.

WATER FOR BEES.

German bee-journals mention the necessity of providing water for bees where nature does not supply it near the apiary. A

dish with something in it, such as small strips of wood, excelsior, straw, etc., to prevent the bees from drowning, will suffice. A couple of barrels with arrangement for continual drip (a spigot, cock, or siphon) would be convenient for large apiaries such you have in America. The barrel should stand on a foundation $1\frac{1}{2}$ or 2 feet high. The drip should fall on a slanting board with rills, or be covered with gunny sack, etc. When bees have young brood they need much water. A large force of bees is needed in the apiary to carry water. In early spring the weather often changes suddenly, and many water-carriers cannot return if they have to go a considerable distance. We often have very bad weather for several days in succession. It is not only the loss when bees are more valuable than at any other time, but the extra work saved to the bees would pay for the trouble of providing water in one or more places in the apiary. Warm water at about 70 degrees to 80 degrees Fahrenheit is recommended. A beekeeper can readily make an arrangement for warming it. A kerosene-lamp will supply the heat very cheaply.

OBSERVATION STATIONS.

In many of the provinces observation stations have been established. A hive on scales is weighed once or twice daily during a part of the year. The number of days and hours during which the bees fly, prevailing winds, the amount of rainfall, etc., are noted. These observations are sent monthly to the chief of observers, who tabulates the results and publishes them with comments. Bavaria has 31 such volunteer observers in the various parts of the kingdom. Switzerland has 39 such stations. The chief, Mr. Juestrich, in his annual report in the *Schw. Bztg.*, states that the 39 stations have 52 hives on scales, 44 of these having their frames in an upright position, and eight in the same way that you have yours. The top-bar is longer than the end. The average monthly consumption for colonies shown was—

November, 710 gr., or 1 6-10 lbs.

December, 688 gr., or $1\frac{1}{2}$ lbs.

January, 794 gr., or $1\frac{3}{4}$ lbs.

The average consumption for ten years was—

November, 741 gr.

December, 888 gr.

January, 956 gr.

In Bavaria the average given for 1911 was—

November, 595 gr.

December, 446 gr.

In 1913,

November, 371 gr.

December, 621 gr.

In April the brood was measured in 14 colonies, showing an average of 34 dm., or about 544 square inches per colony.

SMOKERS.

We have a smoker with a clock and a fan that will blow smoke for about ten minutes. It can be made to smoke just a little or stop entirely, depending on the tension of the brake, which can be readily adjusted as wanted. I expect to use one this summer. I have been using a smoke-blower which is held in the mouth, leaving the hands free.

We have a water-pipe also. It is an atomizer, neat in appearance, and held in the mouth. By blowing instead of squeezing a rubber bulb, it makes a fine spray of water. I have not used one, but have read the praises of others. Whether it is because it is cheaply operated only, or because it subdues the bees, I can not say.

A regular brier tobacco-pipe made especially for the use of beekeepers is extensively used. For one that is a tobacco-user it is quite convenient, and will do very well for an hour or two.

Markt Oberdorf, Bavaria, Germany.

SOME DIFFICULTY IN OVERCOMING PREJUDICE IN REGARD TO SWEET CLOVER

BY WILLIAM BEUCUS

Several years ago I brought from Madison, where sweet clover grows along the roadsides, a quantity of sweet-clover seed. Part of the seed was planted in some soil which I had shipped for inoculation, and the remainder of the seed was scattered about the yard. The plants which grew in the box of soil I transplanted when they were a few inches tall, and these in every case flourished until it was necessary to lengthen my reach with a stick, as shown in the photograph, in order to touch the tips.

In the fall of 1909 a new road was opened to the south of our property; and when it was finished, I scattered upon it some sweet-clover seed. The following year, 1910, was the driest on record for this part of the country. The hay crop was a complete failure, and many farmers sold almost all of their cattle to avoid the expense of keeping them over winter; and yet during all of this time, when timothy and al-

sike and red clover were drying up, the sweet clover I had planted along the road



An exceptionally rank growth of sweet clover on Wm. Beucus' farm, Cadott, Wisconsin.



Roots of sweet clover. Note the "fat" fleshy roots, also the nodules in clusters.

was growing vigorously. In September it had reached a height of four feet, and the stems were as fine as alfalfa, as, indeed, they always are the first year. One naturally would have thought that the farmers would have noticed the contrast, and have given the sweet clover a trial; and yet, even though I called their attention to the matter at the time, and also later, no one was wise enough to experiment with this great legume.

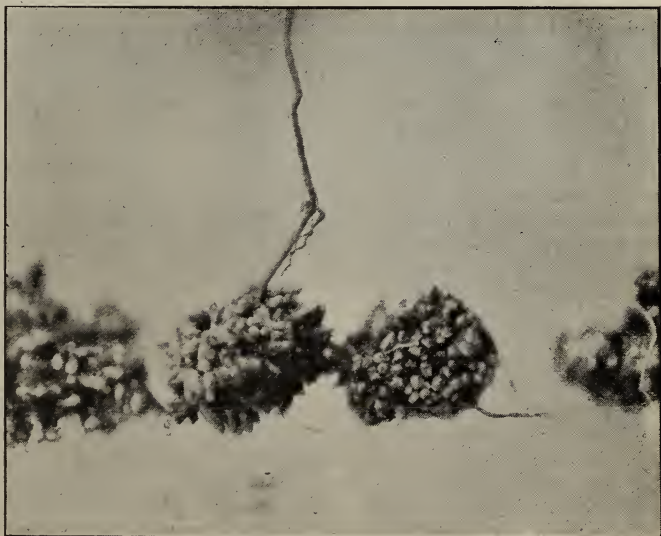
I have called attention to the matter many times since, and have offered seed free to all who would give it a trial. So far not one farmer has shown an inclination to investigate the value of sweet clover for hay, although three have given it a test for pigs, and recommend it highly.

During all this time I had put in the hands of the farmers articles from farm papers, showing up the value of sweet clover; copies of The A. I. Root Co.'s booklet, "The Truth about Sweet Clover," were distributed, re-

turned to me, and redistributed, but without results. The farmers thought, and still think, that that booklet is issued by a firm interested in honey, and, knowing that the sweet clover is a good honey-plant, have concluded that the Root Co. has an ax to grind.

A year or so ago I secured from the United States Department of Agriculture a copy of the bulletin on sweet clover, and let several farmers read it. One farmer who had read "The Truth about Sweet Clover," without being impressed, asked me for seed as soon as he had read the bulletin above

mentioned. He has now tried it for pigs, and recommends it to others. But it is still impossible to find any one who will raise even a small patch of hay. Some say the stems are too coarse, others that the hay can not be properly cured, although they have never tried it. One farmer is inclined to look favorably upon sweet clover for the silo, but on this point I could give no information. Above all, there is still a great



A close view of nitrogen-bearing nodules in clusters on roots of sweet clover.

deal of fear of sweet clover as a noxious weed comparable with quack grass and Canada thistle. In Northrup King & Co.'s catalog for 1914, sweet clover is called "alfalfa's twin sister;" but at the very ending of the praise and recommendation of this plant occur these two significant sentences: "We suggest that you do not let

it go to seed. It can then be controlled at all times." Thus if any good were done by what had preceded, at the very close it was all undone. If sweet clover possesses so many good qualities, why be afraid to let it go to seed?

Cadott, Wis.

PAINTED HIVES NOT BAD FOR GEORGIA BEES

BY L. W. CROVATT

At the risk of being "harpooned" by Dr. C. C. Miller, and being pronounced a common nuisance by the editor, I want to take another shot at this question of painted or unpainted hives.

Dr. Miller, in *Stray Straws*, p. 85, Feb. 1, admits that advocates of unpainted hives "agree that paint is good for the hive, but they think it isn't good for the bees."

Well, now, doctor, let us see. Admitting that I know nothing of climate and general conditions of your locality, I am discussing the question from a southeastern viewpoint. As it happened, I last year had the opportunity to make a study of this same question—the painted and the unpainted hive—in my own yard, and I can say with emphasis that there wasn't the least apparent difference in the relative strength, conduct, or storing ability of the bees in the painted hives and those which were unpainted.

This, then, would seemingly be reassuring to the Southern beekeeper. The insects in the unpainted hive were in no way different from the bees that were housed in hives resplendent with white paint. They most assuredly were not enjoying any advantages derived from an unpainted hive; were no more energetic; did not store any more surplus than the "fellows in the painted houses," and, so far as wintering is concerned, seem to be no better and no worse off than the other colonies in my yard, and we had a severe snowstorm here on Feb. 25—the first since 1899. So far as I could see, the health of the bees in both the painted and unpainted hives was about the same, so the theory advanced is incorrect—*here*.

But, doctor (and I submit this as a *big* but), you should have seen the condition of those unpainted hives. Here, you know, we have a damp climate, taking it as a general thing. The sun shines hot, and wood exposed soon begins to decay. The unpainted hive-bodies had split; "shakes," as the lumbermen call the odd-appearing breaks from exposure, were so thick all over the outer surface that there wasn't a space of half an inch free and unblemished; and

the water, getting into these scarred places, had already begun the work of decay on the hives. They had turned black, and were a sight to see. They had been in use for *one season*. Painted hives to the number of 150 were in the same yard, and showed no great wear and tear after *several years' exposure*.

Now, considering the advance in lumber, which, of course, causes a corresponding increase in hive quotations, don't you think it would be prudent to paint, when by painting we may lengthen the life of the hive? Would it not decrease, or at least keep down, operating costs for the apiarist? Would it not be, let us say, "good business judgment" to paint, if by painting we may cut down our supply costs? I confess that I may, perhaps, be mercenary to a certain degree; but this thing of allowing the weather to rot and destroy the hives is something which does not appeal to me, at least; and it is an established fact that practically 99 per cent of the beekeepers in this region *insist upon painting*, and I assure you that they do have rousing colonies.

As a strenuous advocate of paint I also want to go on record as being a champion of the metal roof-cover. This is *the* cover for this region, for the excelsior, gable, and other devices heretofore given to the public by the A. I. Root Co. have been unable to withstand the climate and checking, soon replaced by gaping breaks; and, incidentally, rotting brood-frame top-bars may all now be avoided by using the metal roof-cover. Assuredly I paint the cover too—from the under side of the telescope to the last fraction of an inch of the metal cover.

The question of paint may be another of those matters covered by the expression "territory or locality," but you would have to talk with a mighty convincing and loud voice to make any one in this section quit painting hives. I honestly believe that paint does not interfere with the inmates of the hive "in this locality," nor is it prudent to be sparing with the paint-pot and brush.

Savannah, Ga.



A field of white aster in Kentucky.

THE WHITE ASTER IN KENTUCKY

BY JAMES S. JOHNSON

In the mountains of Kentucky we have two distinct honey-flows. The white flow begins with fruit-bloom, and lasts until the middle of July and closes with the sourwood flow. We may then have a dearth, owing to weather conditions. If it is rainy weather bees store no surplus until about September 10, when asters come in bloom, lasting until the last of October.

It should be the object of beekeepers to see that all colonies are kept populous by stimulative feeding, or by leaving enough white honey on the hives to keep up brood-rearing. Last year I looked after my hives to see that all queens were kept busy laying, and tried to have all brood-frames full of sealed or hatching brood by September 1. Every thing worked just as I planned. Every colony was rousing strong in bees and lots of brood and eggs.

The flow began five days later than in the four preceding years, owing to the dry season, which made the plants a few days late. Bees do not store much honey from this plant until the fields get as white as snow. My hive on scales showed the heaviest gain

October 2, 3, 4, 5. The exact gain was 25 lbs. for the four days. The whole gain per hive from Sept. 15 until the last of October was 67 lbs., taking the hive on scales for a unit. The 48 colonies in my yard stored 3000 lbs. of the golden goods. I harvested about 1500 lbs. of surplus.

Some brood-frames which I weighed averaged 5 lbs. each, making 40 lbs. to the brood-chamber of 8 frames. This shows that all colonies stored about the same amount.

There were about 95 acres of white aster within reach of my bees.

Picture No. 1 was taken in my apple-orchard, showing the plants just as the flowers began to open September 17. This land was cultivated in corn in 1911. The majority of the plants came up in the fall of 1912. Last year it bloomed some, and this year it gave a full crop of bloom. This plant follows cultivation. To get a full crop a piece of land should lie at least two years after being plowed. It blooms the heaviest the second year after cultivation.

I tried saving some seed. The plants were



James S. Johnson in his apiary, Langnau, Ky.

cut just as the seed ripened, before it let loose from the plant. The hay was then hauled to the barn to be thrashed out later. An average plant has about 1000 seed-receptacles, with about 40 seeds each, making 40,000 seeds to the average plant. The seeds are attached to a downy substance which carries them in the wind to adjacent lands where they lie in the ground until the following fall when they come up and bloom the next year. Last June, when transplanting some strawberry-plants I found the young aster plants just large enough to tell what they were. They will grow some all through winter, and make good for the next year. This plant grows in out-of-the-way places also, and around fence-corners, stones, and trees, or any place where a plant

can get hold. It may be seen in the bottom lands and up mountain sides as far as cultivation extends.

Picture No. 2 is a view of part of my apiary, taken Oct. 17, showing a brood-frame as the honey was being sealed. This frame came from a nucleus formed with three frames August 1. It stored 40 lbs. of the yellow goods for winter. It has a fine young queen, and her bees are hustlers. This nucleus was made of two frames of brood and one of honey. The frame of honey was placed third from the hive wall. Five frames of full sheets of foundation and about half a gallon of bees and a ripe cell were added. Back of me and to my right is the hive on scales.

Langnau, Ky.

QUEENS, LIKE HENS, SHOULD NOT BE KEPT OVER TWO YEARS

BY A. C. GILBERT

The great loss, especially to beekeepers who keep less than 75 colonies of bees in one apiary by tolerating queens that are three years old and over, I think is greatly underestimated by some. It is no great task to save enough choice queens to requeen

half of the colonies in an apiary each year, and at the present time there are plenty of queen-breeders who can be depended on to furnish superior queens. When the time comes to super the colonies, the rousing big ones will be found to be headed by a young

queen every time. Since practicing introducing young queens in half of the colonies each season, we have very few but are ready for the supers when clover begins to yield. When we let them all have their own way a good many colonies amount to next to nothing for surplus, which is certainly a great loss. Suppose the apiarist had purchased queens at one dollar each for such colonies the year previous, the differences in yield might have been 100 lbs. per colony. The above has been verified in our apiary.

The first Italian queen that we introduced in our apiary of black bees was purchased of A. I. Root, I think, 32 years ago; and how anxiously I watched for the first young Italian bees to fly! What a contrast they

presented to the blacks! The bees from that queen filled a super of choice honey from the second crop of clovers, besides a great plenty to winter on. I think queens might be compared to hens as to laying, as a hen after the first year lays fewer eggs each succeeding year. It is just as unprofitable to keep a hen over two years as a queen. Then, again, the condition of the brood-chamber of a prolific queen is such as to keep the queen busy occupying the cells, as the hundreds of young bees are vacating them, which has a tendency to prevent congestion in the brood-chamber, and causing more work in the supers, and more capacity, all of which lessens swarming.

Honeoye Falls, N. Y.

THE CONTROL OF SWARMING AT OUT-APIARIES RUN FOR EXTRACTED HONEY

BY R. F. HOLTERMANN

The article on the above subject by J. I. Byer, page 337, May 1, which has very many excellent points, impels me to say something more upon the same subject. It does not require much of a confession on Mr. Byer's part to admit that he cannot prevent swarming "with all kinds of hives." The hive, its size and construction, has a great deal to do with the swarming impulse. With an eight-frame Langstroth hive it is practically impossible to control swarming unless with much extra manipulation; in fact, the hive has to become a divisible-brood-chamber hive, part of the brood in one story and a part in another, with the consequent necessity of looking up the queen-cells in the upper story, for the risk of hatching queen-cells is too great to allow a man of common sense to take for granted there are none there. Other things being equal, the smaller the hive the greater the danger of swarming.

THE ENTRANCE.

Then the entrance to the hive may influence swarming. In going through the country I have often noticed that the entrances are about 4 inches wide and the usual depth, with the bees clustered there idle. Why? Either because the day is hot, and there is not sufficient ventilation to enable the bees to remain inside, or because there is not sufficient storage room. Such entrances were common thirty years ago, but they are neither common nor *proper* to-day.

All through the surplus-honey flow my hives have an entrance $1\frac{1}{8}$ inches deep, the full width of the hive. With a hive of this kind, and with ample super room, if Mr.

Byer can teach me how "one soon gets to know from external conditions, by the progress being made in supers, and in various other ways, how to diagnose pretty well without tearing into the center of the brood-nest at every visit," I will confess I cannot. I am running about 800 colonies this season; and although I am supposed to be a man who grasps details in business, and is the bane of the employee who does not, yet I confess that, with all those bees, except in isolated cases, individuality in colonies is lost; and from week to week to compare progress in storing is almost entirely lost, unless after the first cells have been broken. I doubt its practicability in any case unless at the last of the probable flow. I give enough room for storage to cover any possibility in the direction of a flow, yet the quantity of empty space in a hive varies too much to make the comparison of remaining space a safe guide.

A well-managed colony with proper entrance and proper surplus room does not show by "lying out" that it is going to swarm, and this is particularly and most emphatically true of Carniolan bees.

Every week we look through every colony for queen-cells; and again and again, in a twelve-frame brood-chamber, after looking through ten out of twelve combs, and taking it for granted that there are no cells in the remainder, we have been mistaken; so my instruction to students is, "examine every comb." And after all that is done we have dozens of times found a queen-cell in the upper story at the bottom of a comb of solid honey—the cell just above the queen-ex-

cluder, clearly indicating that the bees carried an egg up there to occupy a cell. No, in all my journeyings and reading I have found no one to tell me to my satisfaction any way to tell if a colony has the swarming impulse unless the brood-combs are examined carefully. I can tell some colonies, but they are not kept and looked after as mine are.

GIVING ROOM IN TIME.

Then, as Mr. Byer says, the bees must be given surplus room in time; and it must be largely, at least, drawn comb. The critical period is when the colony has a nearly full brood-chamber, and before it enters (or, let me say, *accepts*) the super as a part of the hive; and let me say to the inexperienced, a comb-cell is full, so far as room is concerned, as soon as the queen deposits an egg in it.

SHADE.

Many good beekeepers are opposed to shade for the hive. Let me say unmistakably that, in my estimation, *and in the estimation of the bees*, the statement that the sun shining on a hive in summer brings the bees out earlier in the morning is absurd. It may have that effect early in the season when the leaves are not on the trees; but in summer, after warm nights, this is an absurdity; in fact, I have seen bees at work long before sunrise, and I have heard them

at work from my bedroom window when scarcely daylight. But shade after the leaves come out on the apple-trees distinctly tends to non-swarmling. I know one must be careful about accepting apparent results from isolated cases; but after over thirty years of extensive experience with bees I *know* shade tends to decrease the swarming impulse.

CONCLUSION.

Like Mr. Byer, I know of no absolute way of preventing swarming in the localities in which I have kept bees. There have been seasons where it would not have paid me to go through colonies every week to look for the swarming impulse; but I have to go through them once a week just the same, for I did not know this until afterward. To lose a swarm early in a good honey-flow means the loss of the season's profits from that colony. Then, too, in my estimation a colony requires looking through about once a week to see that matters are progressing right in every way. As long as we do this, foul brood is not likely to get a very serious start in an apiary. A colony will not die out from queenlessness, and other evils can be prevented, provided the examiner is awake and his mind is on what he is doing. In this phase of the work a good rule is not merely to *think* every thing is right, but to *know it is so*.

Brantford, Canada.

AN EXPERIENCE IN WORKING BEES ON SHARES

BY LE ROY LINCOLN.

Early last spring, wishing to make up for a heavy winter loss, I advertised that I would work bees on shares. A beekeeper four miles distant requested me to call. The day was quite cold, so I didn't open any of the hives. In answer to my query if the bees were in movable-frame hives he said that all of them were but five. That satisfied me, so we made an agreement to the effect that, when those five swarmed, and if any of the others should happen to cast a swarm, he was to hive them at the rate of 50 cts. per swarm, and, if possible to notify me in time, he was to do so.

On a nice warm day early in April I thought I would look the bees over to see how they were fixed for stores, etc. I took the cover off the first hive, and, whew! movable frames? Well, they were movable all right, but one had to take the whole hive to move them. The second, third, fourth, and so on all through the apiary were just the same—combs built just as bees delight

in building them—crosswise, lengthwise, and everywhere.

I called Mr. B., and he explained that the frames were movable, because he put them in one by one. No, he didn't use foundation. What was the use when the bees could build comb without? His father always kept bees, and never used a bit of foundation. I saw that I had gotten a "pig in a poke," and went home to think it over. On the way I had visions of streams of fifty-cent pieces leaving my pockets for those of Mr. B.

That evening I hit on a plan which I thought would hold back some of those coins and still give me a crop of honey. Early the next morning I again visited the yard and picked out the two strongest colonies and placed them side by side. The two next strongest were placed side by side about six feet from the first two, and so on throughout the apiary. Of course, this shifting caused some confusion among the

bees; but on again visiting them a week later I could see no decrease in the relative strength of the groups.

As soon as possible I raised a bunch of queens in the home yard; and when Mr. B.'s two strongest colonies showed signs of swarming I removed them to the other end of the apiary. On the old stand I placed a ten-frame hive with one frame of brood and nine of foundation, and a caged queen. On top I put two full-depth extracting-supers. In a very short time that hive was as populous as could be desired. The queen was liberated and had three frames of brood when I next looked, five days later. It was a sight for sore eyes to see the way those bees were storing honey in the supers. There were combs in the supers and foundation below. The queen would fill a frame with eggs as soon as the foundation was drawn out, so the bees *had* to put the honey in the supers. I followed this plan with the rest, and by the middle of June I had 23 good populous swarms working in the supers. By this time the first of the hives thus treated were again so populous that I repeated the operation. As I could make only 60 per cent increase according to the contract, this could be done with only five more. The rest I allowed to swarm, and put them back. Mr. B. did this, and got only eight of my half-dollars. I received a nice crop of honey and had 14 good strong colonies at the end of the season as my share.

When at work among the bees Mr. B. was constantly following me about. He did not try to conceal his surprise at my "ignorance" of certain "well-established facts." For instance, when I started to clip the

queen of one of the newly formed colonies Mr. B. almost had a fit. He said clipping meant the ruin of the colony because the queen would not be permitted to take her "daily cleansing flight."

At another time, shortly after I had returned home from a visit to the yard, he called me up on the telephone and wanted to know if I could come down the next morning, as three swarms were going to issue. I asked which ones, and he replied Nos. 12, 15, and 22. Looking in my record-book I found they were all new colonies. In fact, No. 22 had but five frames of brood. I told him there must be some mistake; but he said he was positive, because he had seen drones flying in front of those hives for the first time, and surely I "knew that within 48 hours from the time the first drone is seen flying from a hive, that hive will swarm." I confessed my "ignorance," and said I would take a chance on their not swarming, and Mr. B., disgusted, hung up the receiver. Is it necessary to state that Mr. B. never saw a copy of GLEANINGS nor any other bee-paper in his life? I am sure the beekeeping brethren will appreciate this very simple method of determining(?) when a colony is going to swarm.

Worcester, N. Y.

[Your plan is all right, except that in some cases it may result in the killing of queens by reason of confusion resulting from the transposing of the colonies. But this will rarely occur when the bees are busy in the fields or are preparing to swarm. Ordinarily we should say the plan would be workable.—Ed.]

SHOOTING DOWN SWARMS

BY ALFRED CARLING

Some time ago the editor said that the man who could show how to take a swarm out of a high tree without climbing it deserved a gold medal, or words to that effect. Now, as I have not seen any one claiming the medal I will try to get it.

My yard is located in a narrow canyon with tall live-oaks on the hillsides. Some swarms will fly high, and cluster away out on the swaying branches where climbing would be out of the question. I spread a large canvas on the ground directly under the swarm, and put a bucket of water with a big brush handy. I then take my 44 Winchester and shoot off the limb that supports the cluster. When it comes tumbling down

on the canvas I take the brush and give the bees a good sprinkling with water. Then with a dustpan I shovel part of them into the hive, and the rest will scamper in like a flock of wet sheep. When water is not handy I roll up the canvas and dump them into the hive and put the canvas over like a tent.

On days when the mercury is trying to crawl out at the top of the tube the bees are likely to scatter in the air as the limb breaks off; but they will nearly always settle a little lower down, and then I repeat the operation till they are low enough to be reached by a 30-foot pole. Again, on hot and still days I have had to wait till the

sun set to prevent the bees from scattering. It gets cool here as soon as the sun sinks behind the mountains.

After the swarm has been shot down once, there seems to be no danger of absconding. When the foliage is so thick that the branch to be cut off can not be seen I take the shotgun, loaded with coarse shot, and clear out all the rubbish in the way. A shotgun loaded with coarse shot will, in many cases, bring down the cluster without the use of the rifle. After the brush is cleared out so I can see the limb the cluster hangs on, I send a bullet in the center of the limb, then shoot on each side of the first bullet so the bullets will strike about two inches apart. This will cut very large limbs.

Once in a while a swarm will cluster in a crotch or on the trunk of a tall tree. I then shoot coarse shot a few inches above the cluster. Fragments of bark and the powder smoke will invariably make them move, and I keep on shooting above them until they are on a convenient place for either hiving or cutting the limb with the rifle. I remember one swarm that had settled very high on a live-oak tree. When I commenced to clear off the branches with goose-shot charges the cluster tumbled down to the next limb repeatedly till the whole tree looked like a toboggan slide. If the limb is thick it will take three or four bullets to cut it off; but generally one or two are enough, as the weight of the cluster helps very much in breaking the limb.

My bees are wild ones caught in the hills. They seem to be a mixture of all races.

Only a few are black. They are very savage at times. I have had a handful of them meet me forty rods from the yard and sting furiously. When hiving a swarm of this disposition during a hot day I dump the whole swarm that has been shot down into a big bucket partly filled with water; shake them up a little; dump bees and water in front of the hive on an extra bottom-board, and it seems to take both the fight and the wanderlust out of them.

Paso Robles, Cal.

[The only objection to your plan is that there is only one man in a hundred thousand who is enough of a marksman to cut a limb with a rifle bullet. Some years ago a taxidermist friend of ours desired to get an oriole's nest overhanging a body of water. As we had been out shooting squirrels we volunteered the suggestion that we might cut the twig that held the nest. The first shot brought it down, greatly to the surprise of ourself and the taxidermist. We then tried to cut off other limbs in the same way, but failed every time. We concluded that our first shot was born of inspiration or luck.

Some have reported shooting into swarms with a shotgun, but in most cases but little has been accomplished, and the result has been that a great many bees have been killed. We have been "mad" enough to use a shotgun many a time; for there is nothing in all bee culture that is more annoying than for a fine swarm to settle upon an inaccessible spot 40 or 50 feet above ground, especially when you are busy with other work.—Ed.]

DOES BEEKEEPING PAY BETTER THAN FARMING?

BY DR. C. C. MILLER

An Indiana correspondent writes:

"I have the 'bee fever' bad, and would enjoy beekeeping; but as I have a good chance at farming, and as this is not a good country for bees, I am afraid to give up farming. The white clover sometimes fails; but there is always a fall flow. If one man gives his entire time to bees in two yards, from 100 to 150 in each, how much per colony could be expected one year with another?"

The easiest way to answer your question would be to say, "I don't know." It would be the truth too. Yet to so many the same questions are occurring that it may be worth while to talk a little about them. One reason that no clear-cut definite answer can be given is that localities differ so much. It

is possible to find a locality specially adapted for some line of farming, but with little pasturage for bees. In such a place, of course, the average person would choose farming. In a place below the average for farming purposes, yet rich in bee pasturage, the case would be different.

Of still greater importance is the difference in people. There is such a thing as special talents. A man who cannot tell one tune from another is not likely to make a brilliant success as an operatic singer. That almost any one can make a living at farming is proven by the many who do make a living at it. Comparatively few are making a living at beekeeping, from which it would seem not so very unreasonable to conclude that few can do so.

Taking your question, "Does beekeeping alone pay better than farming?" it may be not very wide of the mark to say that while out of an average bunch of a hundred men each one may be able to make a living at farming, some a very poor living, and others a good deal more than a living, yet not more than one out of the lot could make a living at beekeeping alone.

The important question for you to decide is whether you are that one in the hundred. Perhaps the first and greatest qualification for the business is a great and abiding love for it. Your true beekeeper is so enamored of the business that he would rather make a bare living at it than to make a fortune at farming. And that very fact makes it possible that he may make more money as a beekeeper than as a farmer.

So you see the question depends upon what you are yourself. The safe way for you to find out is to feel your way. Don't be in a hurry about burning your bridges behind you, but hold on to farming until you have gradually grown into beekeeping on the side to such an extent that you can feel safe in dropping every thing else without asking advice from any one else about it.

Your question as to what may be expected from two yards, each containing from 100 to 150 colonies each, is again one that can not be answered by definite figures in a few words. In some locations 150 colonies in one apiary would yield no surplus whatever, for the field would yield no more than the bees would need for their own use. Likely enough, in most places more surplus could be obtained from 100 colonies than from 150.

From what you say in a part of your

letter that is not printed, you are evidently impressed by the fact that last year from 72 colonies, spring count, I averaged a little more than 266 sections per colony. But please don't understand that getting 266 sections per colony has become a fixed habit with me. So far as I know, that's the world's record for as many as 72 colonies, and I reached it only once in the past 50 years. (Don't make the mistake, either, of calling it, as some have done, 266 *pounds*. If we call 12 sections 11 pounds, it will be about 244 pounds.) And it's not very likely I'll reach it again in the next 50 years. I am more likely to have years of dead failure. In some locations you will do well if you average 30 pounds of comb honey per colony, or 45 of extracted. In others you may get twice as much.

But there's something else to be figured in, and it figures big, big. It's the extra amount beekeeping puts into your life, provided there's the stuff in you for a true beekeeper. Compare your life as a true beekeeper with the life of a man who stays cooped up in a city office and accumulates his thousands. Living close to nature in the pure outdoor air, with wholesome exercise, your span of life is likely to be 50 per cent more than his. Then while he is looking forward to the day when he can retire from business and enjoy life—which time he mostly never reaches—you are having your fun right along with your work. So far as I am capable of judging in such a matter, if I were starting over again I wouldn't swap my beekeeper's life for that of John D. Rockefeller amassing his millions.

Marengo, Ill.

SWARMS FROM DISEASED COLONIES NOT RARE

BY E. G. CARR

Deputy to the State Entomologist in Bee Inspection

Deputy Stine of Ohio, page 822, Nov. 15, 1913, mentions the occurrence of swarms from colonies affected with American foul brood, and asks whether this is rare. In New Jersey this frequently occurs, both in the case of American and European foul brood, and it is evidently the only reason bees have not been completely wiped out in some parts of the State.

Both forms of foul brood in this locality affect different colonies in varying degrees, perhaps depending on the vigor of the stock, coupled with the prosperity of the season.

A colony only slightly affected with foul

brood before the swarming season will usually cast a swarm if other conditions are favorable. This swarm, hived after the old plan, in an empty box or keg, uses up its infected honey in comb-building, and is likely to pass that season healthy, only to be infected the next spring by robbing the parent colony which has by this time become so weakened by disease as to become a prey to robbers, and thus the cycle is completed.

THE DANGER IN GIVING THE BEES TOO MUCH CREDIT AS POLLENIZERS.

It would seem that we as beekeepers are in danger of defeating our plans by claim-

ing more for the bees as pollenizers than the facts will warrant—not that bees are not *necessary in some cases*, but it must be admitted that there are cases and seasons when bees are absolutely not needed to insure good crops of fruit; but as it is impossible to foretell the seasons when the wild pollenizers will be scarce, and the weather unfavorable for their flight, it is necessary to keep bees as an *insurance*, and this should be dwelt upon when presenting the subject.

In regard to whether bees or other pollen-carriers are needed to insure a crop of grapes, page 82, if the editor will stop in some greenhouse where grapes are grown under glass, and ask the attendant how he secures fertilization of the blossoms, he will

find that grape pollen floats in the air, as does corn pollen, and no carrier except the air is needed.

New Egypt, N. J.

[It is true, as our correspondent says, that bees are not necessary in the work of pollinating *all* kinds of plants or shrubbery. He is also probably correct in saying that grapevines are very largely if not altogether self-pollinating. But this does not prove that bees will not be of considerable assistance some seasons. On the other hand, evidence is piling up more and more, showing they are a positive necessity in pollinating fruit-trees of all kinds. See what the Repp Brothers have to say on this subject in the May 1st issue.—Ed.]

TWENTY YEARS AMONG GRAPES

BY FRED COLE

I have made many observations in the Lake Keuka grape-belt, where there are hundreds of acres of grapes within the flight of bees from a yard. As to whether bees bite the skins of grapes that have not been previously bitten by birds or some other insect, I would offer as an argument that they do not, the fact that the Concord, which has the tenderest skin of any grape of which I have any knowledge, but which is a large grape, and which the birds do not attempt to eat, are never visited by the bees except when the grapes become cracked in handling during picking, while on the other hand the Delaware, which is a small grape that the birds eat more or less, but which contains a much thicker skin than the Concord, is visited by the bees, and they may be found eating away the skin

where the birds have injured them. I could never find where the bees eat into the skins of even the tenderest-skinned varieties where the birds had not first been.

In regard to the bee as an agent in cross-pollenizing the grape, I would say that in working in the vineyards while they are in bloom I have seldom seen a bee on the blossoms—not a dozen times in my life, I think, and I have been in vineyards more or less for twenty years.

There are quite a few bees kept in this section. There is a yard of about 80 colonies one mile and a half or two miles north of me, and I have a yard myself of twenty colonies, surrounded on three sides by vineyards.

Pulteney, N. Y.

ANNUAL MEETING OF THE EASTERN NEW YORK BEEKEEPERS' ASSOCIATION

BY S. DAVENPORT, SEC.

The sixth annual convention of the Eastern New York Beekeepers' Association was held Dec. 16, 1913, at the City Hall, Albany. The president, W. D. Wright, presided. There was a much larger attendance than at the annual meeting in 1912, and deep interest was manifested throughout both sessions.

Following the reading of the minutes of the previous meeting, and the secretary's annual report, the president stated that the treasurer, Mr. A. Kingman, having retired from the beekeeping business, had sent in his resignation. The treasurer's report

showed a handsome balance in the treasury. The president delivered his annual address, covering a review of the season for honey production, the current prices of honey at retail and wholesale, and other topics of interest.

The secretary, having served in that capacity for several years, expressed a desire to be relieved from the office. With the retirement from office of the treasurer and the secretary, the annual election of the board of officers stood as follows:

President, W. D. Wright, Altamont; 1st

Vice-president, S. Davenport, Indian Fields; 2d Vice-president, C. W. Hays, Brookview; Secretary, I. V. Labdell, Troy; Treasurer, I. J. Stringham, New York City.

Erl A. Bates, M. D., chairman of the Joint Horticultural Commission, and National President of the Grand International Council of the United States, was present at the afternoon session, and was introduced by the president. Dr. Bates made a statement of the objects of the Horticultural Commission, of the necessity for it, and of establishing a home-building for horticulturists and beekeepers at the State fairgrounds at Syracuse. He suggested the sending of two delegates to the proposed horticultural meeting in January, to be held at Albany, to consider jointly the proposition.

The president was authorized to appoint the two delegates proposed. By a later motion the president was elected as one of the delegates, and he appointed I. V. Labdell as his associate delegate.

The convention was favored with the attendance of Prof. Allen Latham, of Norwich, Ct., who was introduced by the president, and addressed the meeting on self-ventilating hives and honey-houses. His address was interesting, suggesting many details of observation, which controverted some popular ideas of beekeepers.

Dr. G. G. Atwood, of the State Agricultural Department, was introduced, and gave an address on the improper spraying of fruit-trees in blossom as affecting the interests of beekeepers, and also on the spraying of obnoxious weeds for their eradication. He also referred to and described the State Agricultural Department's display of honey at the Chicago Land Show.

Rev. I. V. Labdell, of Troy, being announced

on the program, addressed the meeting on his subject, "A living and more from bees." It was an exhaustive, interesting, and instructive discourse on the practical working of the subject.

W. D. West, of Middleburgh, State Bee Inspector, discussed his subject, "The wintering of bees," giving very full directions for caring for the bees during the dormant season by different methods.

A vote of thanks was extended to Prof. Allen Latham for his attendance and able address. He was elected an honorary member of the association.

Mr. Labdell made extended remarks on making greater efforts to advertise honey and create a demand for it, and offered some suggestions for that purpose.

But one question appeared in the question-box, in answer to which Chas. Stewart, of Sammonsville, State Bee Inspector, gave directions for protecting bees against the depredations of skunks.

The influence and attendance of this, the sixth annual convention of the association, were very encouraging and satisfactory.

The president reported that the 40 dozen nature-study school tablets, illustrating the honey-bee, and advertising honey, ordered of the New York State Beekeepers' Association, and paid for by him, had been so damaged by water in transit or in storage that they were entirely useless, and had been destroyed. He was authorized to draw on the treasurer for whatever amount he was unable to collect in reclamation for the damage and loss of these goods.

At this meeting the members present paid their annual dues, and much other business pertaining to the working of the association was transacted.

SOME PRACTICAL EXPERIENCES IN CATCHING STRAY SWARMS

BY J. M. KINZIE

If there is any thing that boys like it is climbing trees, and just such fun as comes from getting the swarms the trees furnish. My boys in California have built up an apiary of over 200 hives this way. One of them has bought a 35-horse-power automobile to haul his bees back and forth. He took off the back seat and has a kind of frame that he puts on, and is thus able to haul 20 hives at a time. I would rather have my boys engaged in some such sport than hanging around the saloon.

CATCHING STRAY SWARMS OF BEES.

I have often heard people make the remark, "My! I should like to have a hive of bees if they did not cost so much." In this article I propose to tell how to get one or more stands without much cost. In most localities there are more or less swarms that go away every year. Some of them come from hives of bees; but the most of them come from bees that are in trees in the woods or large apple-trees. The way we do it is as follows:

We make boxes and put two to four frames in them, with starters of brood foundation one or more inches wide. We prefer to have the starters one inch wide, as then there is no danger of their melting down from the heat of the sun, as sometimes happens to hives having full sheets of foundation. We then take these boxes and put them in apple-trees, or trees along the roadsides, having first obtained permission of the owner to do so. We set the boxes on a limb and tie them with strings. The boxes have an entrance like that of a real hive, and we make several half-inch holes in the ends, covering these over with wire cloth. We prefer to set the entrance facing the south or east, and to have old frames that have the scent of bees on them. We start out with a load of these boxes, and keep an account in a book of the place where each

one is set. The boxes are numbered from 1 up. One year we got 30 swarms in this way, and 5 in one tree. I might say that we had over 70 boxes out.

In California last year one of my sons caught 9 swarms in this way, and he found 5 more in a ledge of a rock, a distance of 150 feet inside. Some of these swarms were so far back from the face of the rock that he had to make a knife with a long handle to reach in to cut out the comb. This year they are figuring on getting 200. As the country becomes cleared up, and the trees cut down, it is evident that there are not so many holes in the trees for these stray swarms to take possession of. Out of the dozens of swarms that we have caught in the past eight years, only one has developed foul brood.

Rochester, Mich.

SEPARATORS USED ONLY WHILE SECTIONS ARE BEING FINISHED

BY OTTO A. PARK

In the A B C and X Y Z of Bee Culture I read that separators may be omitted if common beeway sections are used, no wider than the brood-frame— $1\frac{3}{8}$ inches from center to center, with full sheets of foundation fastened to all four sides of the sections. Combs would be built nearly as straight as when separators are used; but beeway sections only $\frac{1}{8}$ inches thick would not hold a pound of honey; so it was up to me to have some supers built with section-holders to be self-spacing, and to have sections made $1\frac{3}{8}$ inches wide on the long side, and $1\frac{3}{8}$ on the short or narrow side, the same being only $\frac{1}{8}$ cut out of each side. When two sections came together it would leave a beeway, and at the same time have some protection for the comb when shipped. In order to use them I had to put one fence separator in the super first; then the eight section-holders, with four sections in a holder. This super was far ahead of any thing I could find for it had a great many advantages over the old. The bees would enter them at once, and there was no need of any separators until the combs were three-fourths drawn out. Then one of the section-holders was removed from the super, the remaining holders spread apart, and a separator dropped in between each holder, super springs being put in to hold them together.

It will be seen that, by the above plan, the bees have no separators to begin with, and this is why I could get combs built so readily. If baits were used they were put one in each holder. When putting in the

separators the holder that was taken out to make room for the separators was used for bait in the next empty super that was usually put on at that time. If they were not used as baits they were left in the holders; and when there was enough to fill another super it was given to a colony that could use it.

If I didn't use full sheets of foundation, and wanted the bees to build combs full at the bottom of the sections I would turn the holders upside down, before the combs were capped over too near the bottom. Every one knows that sections are filled out much fuller at the top than at the bottom; and this turning the sections bottom side up was just what was needed to fill the sections out full at the bottom.

I will admit that I have not tested this plan as much as I should like, the reason being that, at the time I was raising comb honey, I could get only 12 cts. a pound, and could get that for my extracted. Last season I got 15 cts. per lb. Would it pay me to go to raising comb honey again? It brought 16 cts. per lb. last season.

Birmingham, Mich.

[With a difference of only one cent between comb and extracted it would surely pay you to keep on producing extracted honey.

It is just a question in our minds whether the gain in the time the bees entered the separatorless supers would make up for the extra labor involved in going through the yard to put in the separators later on.—Ed.]

Heads of Grain from Different Fields



THE BACKLOT BUZZER

The size of the army, when robbing is going on, and the way the little sisters show a disposition to defend their homes on a rainy day, kind o' makes a fellow feel skeptical about this universal-peace and equal-suffrage problem.

Good Wintering Not the Case Around Lysander, N. Y.

In the issue for April 15, I note that bees, taken the country over, wintered very well. I can't understand this, for it was not so around here. We had about as hard a winter as I ever saw here for bees. At one yard of 50 colonies, well packed in sheds, in the southeast side of a big swamp, where northwest winds get at them, I lost nearly half of them. The rest are weak, with the exception of 12 colonies. Nearly all of those that died appeared to have done so with plenty of honey in the hives. In some cases there was honey all around the cluster. I never lost bees like this before. My man who has charge of this yard when I am in Florida says it was 20 below zero twice, with snow on the ground around the hives and the wind blowing a gale some of the time, so this might account for it.

My bees here at home, outdoors and in the cellar, did not winter quite as well as they usually do. I lost only a few, and those were mostly nuclei in the cellar. Two-thirds of my colonies were out of doors the past winter—the most I ever had out. I think a cellar is the best place for bees in this locality, take

it one winter with another. It rarely goes as low as 20 below zero, and we seldom have one week of zero weather at one time; but we do have severe fierce winds and sudden changes, lots of snow usually, but did not have as much as usual the past winter.

EDW. A. REDDOUT

Lysander, N. Y., May 1.

Queens that Lay 6000 Eggs in a Day; the Sagging of Comb Foundation and Securing Perfect Combs

In the A B C and X Y Z of Bee Culture I note that A. C. Miller speaks of queens that will lay 6000 eggs per day. Has any one any such queens for sale? and what do they cost?

For several years I have been much interested in the securing of perfect combs in the brood-nest. I used a lot of the Danzenbaker hives, and tried all the methods recommended by Mr. Danzenbaker; but the bees refuse to obey his instructions.

Now, when I put a sheet of foundation into a wired frame it seems to me that, if I am to get a perfect comb, the sheet should entirely fill the frame, and then it would be attached at all four sides. In regard to the foundation sagging, does it sag more on the wires, or do the wires stretch?

Why is it that the foundation on the market is cut so much smaller than the frames? I think that, if it comes nearer to the bottom-bar, there would be a better chance to get perfect combs.

LEWIS P. FARWELL.

North Charlestown, N. H., April 30.

[About queens laying 6000 eggs a day, we would say that Mr. Miller merely stated the maximum number that a queen *could* lay in a day. The average queen probably does not lay more than 300 or 400 in a day; and in the height of the season not much over 1000 eggs as a regular day's job; but if she is given an empty comb, cells all cleaned out, she may lay 3000 or even 6000 eggs in a day.]

You will not have very much difficulty in getting perfect combs with the Danzenbaker hives. All that is necessary is to reverse the combs when some honey is coming in, and by that means some combs will be filled down to the bottom-bar. It is not practicable to put in sheets of foundation large enough to reach clear down to the bottom-bar unless vertical wiring is used or wooden splints. Some do not succeed with the latter, and the former is not practicable with thick-top frames. When the bees draw out a sheet of foundation it is inclined to stretch downward; therefore it is necessary to have the sheets cut of such a size that they will be about $\frac{1}{4}$ inch, when inserted, less in width than the inside depth of the frame.—Ed.]

Not Bee Paralysis but Starvation

I just had my first case of bee paralysis, and, of course, I was a very good doctor and quickly diagnosed the case as paralysis. I was going to try the Poppleton cure, as it was on one of my largest colonies of bees, and I wanted to do something very quickly. They were coming out of the entrance of the hive at about the rate of ten to fifteen per minute, and it seemed that they were increasing. They began to show symptoms about 4 o'clock in the afternoon, and by next morning I had something like one-half to a gallon of bees dead in my hive. I decided to isolate this hive immediately, so I took it up and moved it about a mile from the other apiary and opened it up, and it looked to be about a good-sized swarm of bees on the bottom-board, and, lo and be-

hold! I discovered that there was not a drop of honey in the comb, and practically all the brood had hatched out with the exception of two or three small patches. I gave them some sugar syrup immediately, and they went at it as pigs would swill, and I found that my paralysis was nothing more nor less than starvation. I also realized then that the queen was a very prolific one, and the swarm an unusually large one. She had used up all the stores in the hive in raising young brood, and we had just had three days of very cold rainy weather which brought about the starvation.

Kinston, N. C., April 21.

J. W. BLACK.

What Made the Paint Come off the Hives? What Kind of Paint to Use

I do not want to be understood as being against unpainted hives or painted hives, as I am only a beginner; but last fall I fed my bees on sugar syrup from October 1 until it was too cold to feed them, and they went into winter quarters with their hives running over with bees. In preparing them for winter I used some heavy wrapping paper over the hives and then wrapped around this a single ply of roofing paper after putting on top of my hives a super filled with planer shavings. I made one nice complete job of wrapping over the super and all. When I took off this paper this spring the paint had literally left the wood in patches from the size of a quarter up to the size of a silver dollar. They all looked as if they had been through a fire with the exception that they showed no char on the outside.

I had two colonies of ordinary size in the Danzenbaker hive. These showed no signs of blister, but the others are in very bad order. I am going to transfer these frames to other hives and scrape them and repaint them. Is there any way I could prevent this blistering next fall, and also wrap my hives so that they will be warm?

Kinston, N. C., April 21.

J. W. BLACK.

[It is important to have the hives thoroughly dry before painting. If the lumber is a little green at the time of putting on the priming coat, the paint would easily flake off later; but this was evidently not your trouble, as your Danzenbaker hives, painted presumably with the same paint, did not flake. Your paint did not have enough dryer in it or you put your wrapping on the hives when the paint was too green. Unless the paint were thoroughly dry (and it would not be dry unless some dryer were used) the paper wrapping would take off the paint in patches just as you describe.

We advise a pure white-lead and linseed-oil paint. Some of the ready prepared paints on the market have neither lead nor zinc in them; and instead of linseed oil they have fish oil. Such paint is dear at any price.—Ed.]

Five-banded Bees Immune to American Foul Brood

I see Mr. J. E. Crane is after the five-banded Italians. My brother-in-law (John Talbert) had 100 colonies, spring count, 1907, of three-banded Italians. They became diseased with American foul brood that summer, and in the spring of 1908 there were only 52 colonies left. I moved them down on the river near Mr. Nathan Sams, who had 80 or 90 colonies of five-banded Italians. At that time my home yard was on one side of him, and the Talbert bees on the other. Both yards had foul brood, and they were a good grade of three-banded Italians. The farmers were losing their bees on all sides of him. I was talking to Mr. Sams last fall, and he said he had never had a case of American foul brood.

In 1910 I commenced to raise five-banded Italian queens, and every time a colony had to be treated for foul brood I requeened with a five-banded queen, and last fall I went into winter quarters with only

two cases of American foul brood. I like five-banded bees because they brood up early in the spring, and get ready for the honey-flow when the second cutting of alfalfa blooms.

Freewater, Oregon.

C. A. MCCARTY

Requeening without Dequeening

The "basic law" for requeening without dequeening, which Mr. A. C. Miller is in search of, Dec. 1, 1913, page 850, will probably be found in Mr. G. M. Doolittle's writings of some twenty years ago. Mr. Doolittle found that, on giving all colonies a queen-cell at the close of the white-honey harvest, about a third were accepted each year. He concluded from this that queens in the small hives he used at that time began to fail at about the third year, and that a queen-cell would be accepted by all colonies headed by a failing queen, even though they had not themselves made preparation to supersede her.

I believe Mr. Doolittle has found that, in the large hive he now uses, the queen usually begins to fail in about two years. Mr. J. B. Merwin, in the article following Mr. Miller's, brings out the same point where he says, page 852, "This plan will work well on all queens two years old or over," and that is probably the "basic law"—"a queen-cell will be accepted by any colony with a failing queen."

Mr. Merwin may greatly simplify his work by using a ripe or nearly ripe queen-cell. I believe, though, that when you wish to requeen a colony having a vigorous but undesirable queen, the "basic law" will require you to do it in the good old way.

Had I any desire to "jab" Mr. Miller or the editor I would suggest that they procure a small work entitled "Scientific Queen-rearing," by one G. M. Doolittle, in which they may find the plan which the editor says, page 852, is "worth pasting in the hat."

Audubon, Iowa, Dec. 15.

E. M. COLE.

Bees Steal Eggs from Another Hive to Raise Queen

There have been many articles written the last few years, showing that bees sometimes move eggs from one hive to another. I think we had the most positive proof to that effect of any that I have seen. Last summer Mr. Frank C. Pellett, our State bee-inspector, and a friend with him, were at our place. After inquiring about the bees I told him that all seemed well but one colony, and we went to examine it. We commenced on one side, and took out the frames to the center, and found no brood nor eggs in the hive, nor any queen; but we found two queen-cells—one sealed and the other about ready to seal, and that was all the brood there was in the hive—no queen. It seems to me that this could not have occurred unless the bees had transferred eggs from some other hive. In a few weeks I examined it again and found two frames pretty well filled with brood and eggs, and as fine a young yellow queen as I ever saw.

Bedford, Iowa, Feb. 10.

J. H. FITCH.

Are Fumigated Combs Objectionable to Bees?

I have accidentally made a discovery with my bees that leads me to believe that disinfecting old combs with bisulphide of carbon to destroy wax moths makes the combs unfit for use again for brood-combs. I have never seen any thing in GLEANINGS about this chemical doing any harm to the combs; but, as I said above, I am now of the opinion that it does.

Seymour, Ct., Feb. 5.

P. J. HOEVEL.

[We have fumigated considerably with carbon bisulphide, and have never noticed any bad effects afterward, although, since our combs thus fumigated are very seldom given the bees again any way, we can not say for sure. If any of our readers have had any opportunity to test this matter, we should be glad to hear from them.—Ed.]

A. I. Root

OUR HOMES

Editor

I pray not that thou shouldest take them out of the world, but that thou shouldest keep them from evil.—JOHN 17:15.

As thou, Father, art in me, and I in thee, that they also may be one in us; that in the world may believe that thou hast sent me.—JOHN 17:21.

On page 275 a good friend suggests doubling up the country churches, and asks me if I justified the existence of sects; and on the next page another friend tells us how a good live pastor got his church so filled that there was not standing room. He visited *eighty saloons* in the town on Sunday and Sunday night, and found *only six* paying any attention whatever to the Sunday-closing law. Again, on page 285 Dr. Miller discusses having so many denominations. As I was down in Florida I did not see it until it came out in print; and you may be sure I had a big laugh at his expression, "us younger ones." Is it not a pretty good joke from a man "eighty-three years young"? Well, I think I can pretty well agree with my good old friend Dr. Miller. If we could get together and talk it over I assure you we should not be very far apart in our opinions and suggestions. Now, right here comes in a kind word from a good friend about "so many denominations."

Mr. A. I. Root:—On page 275 some one asked you a few very pointed and consistent questions. I have not seen any answer as yet. I should like to say a word or two on this subject, as it is a question that lies very near my heart.

1. Is the church of Christ celestial only, or is it a part of the world?—Matt. 16:13-19. This very clearly locates Christ's church on this earth, and I know of no scripture that changes its name in heaven. Wherever that may be is of little consequence to the member of Christ's church.

2. Divisions certainly are carnal, or else our Savior uttered a very meaningless prayer in John 17 and Paul in I. Corinthians 1:10.

3. Do you justify the existence of sects? This is answered in the quotation given above in our Savior's prayer for unity. Then the question is, "Does Christ justify the existence of sects? From my limited knowledge of the New Testament I have no hesitancy in saying it is sinful.

I heartily endorse what a brother has to say on page 285. I believe he has about the correct notion of it. When we get down to "brass tacks," and quit quibbling over tweedle-dee and tweedle-dum, and do what the Lord says, we shall be seeking a basis on which all Christendom can unite. Let us consign to the flames all articles of faith or rules of practice or any other man-made creed, and take as our rule of faith and practice the New Testament. When we speak where the Bible speaks and are silent when the Bible is silent, we shall be at a point where all Christendom will be a united church of our Lord Jesus Christ.

ALBERT HOLLINGSWORTH.

Terre Haute, Ind., April 25.

we speak where the Bible speaks, and keep silent when the Bible is silent, we shall be at a point where all Christendom will be a church of the Lord Jesus Christ."

Dr. Miller speaks of having so many denominations just because of minor unimportant differences.* While grave questions confront us that must be taken care of at once, not only ministers of the gospel, but good Christian people stop to fuss and bother and argue about things that seem to me to be pure nonsense. That expression does not half tell it. If you will excuse slang I would put it this way: It seems just *awful* that good, educated people should waste their time and energy on things that are but little more than "tom-foolery." After I read "Pollyanna" some of the good friends in Medina told me I should read a new book entitled, I think, "The Inside of the Cup." Now, while there is a lot that is good in the book, the author, without the least bit of reason, drags into it the dispute of the doctrine of the immaculate conception of Jesus. I threw the book down in disgust and said, "What good can come by taking up a question like this, that has no possible bearing on the needs of the day?" There is enough tendency already, God knows, to question the truthfulness of the Bible as God's holy word. Suppose somebody has been brought into the church, prayer-meeting, or Sunday-school; and suppose, further, he has not given these matters much attention: what possible benefit could he get, spiritually or in any other way, by listening to this silly criticism? If that is a part of the "new higher criticism," I wish to know no more of it.

I now wish to give one more illustration about wasting our time and energy on a matter that cannot possibly benefit the world in any way, as I look at it. Some very good people are wasting their energy, and I do not know but a good part of their lives, toward what they call the importance of changing Sunday to Saturday. Such a course, as I see it, not only accomplishes

* It just now occurs to me that Dr. Miller is a *Presbyterian*—at least that is my recollection. Well, Mr. Calvert has just returned from the State conference of *Congregational* churches, and he says the matter came up there in regard to doubling up denominations. In fact, there has been talk for some years past of uniting the Congregationalists, Presbyterians, and the United Brethren. I think one thing that blocked the way was a disagreement as to what the new body should be called. Well, here comes in the joke on Dr. Miller. Mr. Calvert says the conference reported there are twelve kinds of Presbyterians. My good friend Miller, hadn't you Presbyterians better start the ball rolling by first reducing the number and the kind of Presbyterians? Couldn't you possibly coax them down to an even half-dozen?

While I may not be prepared just now to endorse *all* of the above, I wish to add emphasis to the concluding sentence: "When

nothing, but it blocks the way, mixes things up, handicaps themselves and everybody else they run against, without having accomplished any thing. I have wondered again and again how it was possible in this day and age of the world, when superstition and folly are fast giving way to good common sense and righteousness, that these people should *continue* in their queer notions. While I write, our people here in Ohio are discussing the adoption of eastern (New York) time in place of the present central (Chicago) time. I confess I think it will be an advantage to do away with having an hour's difference between Cleveland (and Medina) and New York; but the papers are full of what I cannot help looking at as silly talk about giving the people "more daylight" by changing the clock an hour ahead. I say, and have said repeatedly, change the clocks by all means, if it seems best; but do not by any means change the hour of getting up and going to bed, simply because the *clocks* have been changed. Neither is there any need of changing the time of starting and stopping our factories, the time of school, or time of going to church, prayer-meeting, etc. The time of starting business and closing it has been settled by universal consent largely, according to the rising and setting of the sun. Why in the world should we make *any* changes simply because the *clocks* are changed? When old Sol decides to change his time of rising in the morning and of going down at night, then we may consider a change in our habits.

I think no one will doubt for a minute that the saloons and the whole liquor traffic might have been banished long, long ago, had our churches and their respective pastors been united as they are getting to be, just now. The awakening to the evils of intemperance has been a long and slow process; but, may God be praised, it seems now fairly well in sight; and the work of driving them out, I verily believe, will unite our different denominations as nothing else has ever done.

I have alluded several times lately to the measures that are being adopted to save human life, and to alleviate sickness and suffering—the "safety first" organization. Now, if our churches, Sunday-schools, and Endeavor Societies could drop unimportant differences, and give the same attention to the children, including the grown-up children, how much might be accomplished! Let us keep the good old Bible as it is—speak when the Bible speaks, and be silent where the Bible is silent. There has been a discussion more or less for ages, perhaps, as

to what becomes of us immediately after death. Do we have a period of sleep, as some claim, or are all to be received, like the thief on the cross, in "paradise this day"? Perhaps it is well enough to search the scriptures carefully and see what they tell us about it; but I would not waste much time in the matter. Shall we not use the same time and energy in taking care of "thieves" who have not gone *so far* as to reach the cross? And look out for the children that are growing up, and see that they do not get into the *company* of thieves, and that there be no thief-breeding places such as saloons, etc., in your immediate neighborhood. By no means let us sit down with folded hands, as Dr. Miller puts it; but after we have gotten up and started, may God help us to use our strength and energy in fighting *real* evils—things that are a menace to bodily health as well as to spiritual growth. The dear Savior in his prayer in our opening text did not ask the great Father to take his chosen ones out of the world. He meant they should stay in the world, and that they should be "the salt of the earth;" that they should mix in with saints and sinners—*especially* the sinners. But he did pray that the Holy Spirit should keep them while in the world and protect them from all the evils surrounding them.

HORSERADISH AND CHRISTIANITY.

Perhaps, friends, you think the above a queer combination; but listen to the good brother below, who wants his name withheld:

In the April 1st number of GLEANINGS, page 277, you speak of selling horseradish, which cost 4 cts., at 10 cts. That is 150 per cent profit. If a pound of honey costs 10 cts., and sells for 25 cts., that is 150 per cent profit. Now, where can we draw the line between just and unjust gain—I mean, looking at it from the Christian standpoint? I have thought much on this subject, and have tried to look from both the producer's and the consumer's standpoint.

My good friend, I may have been a little careless; but did you not *also* notice the sentence, "but I tell you it took some 'bossing' to secure smooth running all the way from producer to consumer"? In the "4 cts." mentioned I did not count my time at all. Should not the man who studies and works up such a short cut have some pay in the shape of profit, for inventing the machinery, or establishing the industry? Mrs. Root has all her life "put on the brakes" to my "great discoveries," and she has often been right—they didn't pay cost. Therefore I greatly enjoyed demonstrating to her that I was making "a safe margin," and also having pleased customers. Once more,

there is a disposition all over the land to trade in "nickels" and avoid fussing with pennies. Five cents for something that costs four cents, or perhaps a little more, unless the demand is enormous (like *Uneeda biscuit*, say) would be risky. You see the cost of handling a five-cent deal is just as great as a 25 or 50 cent one.

BEES WANTED FOR ORANGE GROVES AS WELL AS APPLE ORCHARDS.

We clip the following from the *Florida Times-Union*. While the substance of it has appeared recently in these columns we reproduce it as showing how rapidly the general press is disseminating the truth concerning bees as pollenizers of fruit.

BEES: THEIR VALUE NOT APPRECIATED.

If the office of bees in increasing the yield from plants were fully understood, there would be many more apiaries in Florida than there are at present. It is said that encouragement of beekeeping in a certain district of Nebraska, where much alfalfa is grown, resulted in the addition of more than 200 per cent to the yield of good seed of high germinative powers in the field of that valuable legume and hay plant. We have heard of a citrus grove in South Florida which bore well for some years. Year before last some one discovered a bee-tree near this grove, cut it down, and thus dispersed its inhabitants. The following year there was almost no crop from that grove.

Not only fruit-growers but observant truckers are aware that they are much indebted to the bees. The little honey-gatherer dives into the depths of a blossom in search of nectar, and, emerging, carries off much pollen on its fuzzy coat. Within the next blossom of the same species it visits it rubs much of this pollen on the pistils, securing the fertilization of the ovules and the consequent formation of fruit. Cross-fertilization, so essential to the stamina of plants and animals, is made more certain by the visits of the bees. So well is the useful agency of the bees understood in many parts of the North that fruit-growers maintain bee colonies in their orchards—not so much for the honey, which is regarded rather as a by-product, but for the sake of increasing the yield of the trees.

If the bee is so useful in a climate so cold that the hives must be protected most of the winter, and the bees must be fed after a severe season in order to preserve them, how much more should the busy denizen of the hive be encouraged to thrive and multiply in a climate in which it can gather honey practically all the year, and in a land where fruit and vegetable growing is so great an industry? There is practically not a day in most of our years when the bee cannot find some blossom from which to gather honey—in a large part of Florida not a single day. This, therefore, should be a land of honey. Apiculture is so much easier a following in Florida than in more northerly latitudes—should be so much more remunerative—that we should have hundreds making it a livelihood.

Some fear stings; but there are breeds that are gentle in disposition, not easily aroused to attack. Experienced beekeepers often dispense with protection while working among their bees, having learned how to avoid alarming, or rousing the resentment of their charges. Apiculture does not call for a large expenditure of money to begin it, nor a large area in which to conduct it. There are instances of profitable bee colonies being maintained on house roofs in large cities. It makes no great draft upon one's time nor large drain upon one's pocketbook. Bees

are, of all living creatures on the farm, the most able to take care of themselves, especially in a genial climate, and there is no more certain crop than that of the hives.

"SEED BEES."

The expression, "seed bees," caught my attention while glancing over a copy of the *Farm and Fireside*.

A POUND OF SEED BEES.

By buying bees in pound packages one is able to get a start in beekeeping at the least cost, and the system is economical for those who have lost considerably during winter or in early spring.

The middle of last April I ordered three one-pound packages of bees, each pound to be supplied with a laying queen. The price per pound for bees was \$1.50, and the queens \$1.25 each. These came from Fitzpatrick, Alabama. They arrived on my Wisconsin place on the 18th of April in good condition. On arrival each pound was put on four drawn-out Hoffman frames, in double-walled hives. An extracted super was put on top.

They were fed daily on a syrup composed of equal parts of sugar and water. They immediately started brood-rearing, but one of the queens turned out to be a drone-layer. The other two packages increased.

These two pounds were increased to five rousing colonies; and, besides, over 100 pounds of honey were extracted.

The expressage on these three packages was \$1.20. This brought the total up to \$9.40, or \$1.89 per colony.

The cages were six by seven, and eight inches high. They arrived as one package, being arranged one on top of another, two inches of space between each. Each was enclosed with netting, except two sides where a board was used.

I am sure it would not have been possible to get the above results if I had used single-walled hives, because the atmospheric changes would have been felt too keenly.—*Oscar Kazmeier*.

Two important points are brought out in the above—first, that it is possible to purchase bees by the pound and have them shipped as far as from Alabama to Wisconsin, and still prove to be a profitable transaction—so much so that two pounds may increase to five and give over 100 pounds of extracted honey besides; and I am strongly impressed with the fact that young bees at the proper time in the spring may be shipped from Florida and other southern States to points here in the North so as to be a paying investment all around; and it may result in a great and growing industry.

THE "HOPE FARM MAN" OF THE RURAL NEW-YORKER, AND BEE CULTURE.

Our readers who are conversant with the *Rural New-Yorker* will be pleased to hear, I am sure, that the Hope Farm Man is getting interested in bee culture. He recently wrote the A. I. Root Co., asking some questions about the case of bees. After getting a reply from E. R. Root he writes as follows:

Mr. E. R. Root:—I am very much pleased with your letter, and thank you heartily for sending it.

This is just exactly what I wanted, and really is the most interesting article on bees that I have read in a long time. It tells me exactly what I wanted to know, while I confess that most of the articles on bees don't seem to tell me any thing at all. What you say is exceedingly interesting, and I believe you are entirely right regarding the effect of a colony of bees upon apple and peach bloom, or setting of the fruit. Our bees appear to be very happy. I have one of the redheads who thinks he is going to make a beekeeper. The bees stung him the other day, and he certainly let out a number of screams, but I think he will get over it, and I am greatly pleased to have our children take so much interest in the care of these busy little creatures. It appears that I was right in thinking that there may be lazy bees as well as lazy men. I know that the hired man generally has his off days, when, if you put him alone at some work in the hot sun, he is sure to seek the shade and think his work over with great care.

I had a colored gentleman working for me once, and I tried to tell him how careful he must be to think his work over and plan it thoroughly before taking it up, as he could accomplish ever so much more if he had it thoroughly organized. I sent him to a back field to put a bag of fertilizer on some corn. After he had been over there a long time I thought I would go over and see how things were doing. There sat Alic under a tree, looking at the bag of fertilizer. When I asked him what he was doing he said, "Well, boss, you told me to study this here work mighty careful, and I am doing just what you told me." The whole subject of beekeeping is coming upon us as a very interesting thing. I really didn't know there was so much to it, and I am glad of the chance that has enabled us to get hold of these little friends. I am greatly obliged to you for your kindness in answering the questions.

New York, May 25. H. W. COLLINGWOOD.

IS THERE NO CHANCE FOR A POOR MAN TO KEEP BEES?

My dear Mr. Root:—I worked for so-called Christians for 25 cts. a day when 16 years old, and the memory of rats crawling over my bed at night still lingers. I got up in winter at five o'clock, and hauled manure all day in the cold for 25 cts. Were it not for the stupor whisky gets the laboring classes into, conditions would have improved long ago. But what can you expect?

It makes the hot blood come to my temples when I see the extravagances of rich men who control legislatures. They foist whisky on an unsuspecting public, and then appeal for votes from that same public. Roads are being made in this State that will not last. Sewers are put through and no guards on the mouths. These men are the enemies of society, who openly boast that woman suffrage is disrupting the home. I love bees, but if we keep on destroying homes, no one but rich men can keep them.

SAMUEL B. HENDERSON.

Centerville, Ind., Oct. 20.

My good friend, I too worked for 25 cents a day riding a horse to cultivate corn; but I had a good bed because I boarded and lodged myself when I got only 25 cents. I, too, feel the hot blood come to my temples when I see rich people wasting money on their diamond necklaces, pet dogs, etc.; but may I suggest to you and others who claim there is "no chance for a poor man," that many of the great men of our day, and *very many* of the rich men of our day, started as poor boys? Now, it is the poor boys who

are blessing the world. The sons and daughters of the *millionaires* are the ones to be pitied. Is it not so? I fervently thank God that he started me as a poor boy on a farm; and when Mrs. Root and I were married we had comparatively nothing; and I verily believe that, had our good parents been able to give us a thousand dollars, or ten thousand, to start a home with, it would have been a handicap instead of a blessing. I should like to ask all of our readers who agree with me in this to raise their hands; and as you drop your hands, let each and all thank God that he *was* born poor, and had to fight his way in this great busy world.

In regard to bees, where is the boy who can not scrape up money enough to buy a single colony to start with? and I believe his chances will be better with this single colony than if his father were to give him a whole apiary.

POULTRY-KEEPING IN FLORIDA.

The clipping below from the *Florida Grower* will answer a lot of questions:

POULTRY PAYS.

I cannot help replying to the man who made the statement some time ago to a northern friend that poultry did not pay in Florida. I arrived here on September 21, 1913, and on November 2 a friend set a hen for me, and the result was ten little chicks. I paid for the hen 75 cts. and 50 cts. for the eggs. On March 25, 1914, the pullets started laying, and on March 28 I sold four of the roosters at 21 cts. per pound; the four weighed seventeen pounds, for which I received \$3.57. The cost of the feed for the four months had been \$1, so, including the price of the hen and eggs, \$1.25, and feed \$1.00, I was \$1.32 to the good and I still had the hens and the four pullets. The hen started laying on February 15. On April 21 I set one of the pullets, and to-day, May 11, she hatched twelve chicks from the thirteen eggs I gave her, and the old hen is sitting again also, and another one of the pullets. I will leave it to you whether poultry pays or not.

G. H. N.

Davenport, Fla., May 12.

[You are certainly doing well; but you seem to have started a kind of perpetual-motion farm. But that is the way to do things, and we congratulate you upon your enterprise.—ED.]

Permit me to say that what is stated in the above is true. Any person of fair skill with poultry can do it every time. I have done it for the past seven winters, with the exception of getting the pullets to lay in March or April. We generally reach our Florida home during the first week in November, and usually leave for the North about the middle of April. If you are successful with chickens here in the North or anywhere else, you will be likely to succeed in Florida, with the tremendous advantage of having no weather in winter that will interfere with the raising of chickens. I feel sure, too, that the fireless brooder is all that is needed in Florida at *any* season of the year.

HIGH-PRESSURE GARDENING

THE IRISH COBBLER POTATO, AND THE SPORTING HABIT OF POTATOES IN GENERAL.

This spring, as usual, when I wanted some choice potatoes to plant (especially the Red Bliss Triumph), I did not find any in our locality. I would, of course, have brought home some of that kind that grew in Florida, but they would not have sprouted in so short a time after being dug. I have mentioned the seed firm of F. W. Gibbons & Co., of Boston, Mass., who grow potatoes, especially for planting in the South, by the hundreds of carloads. I wrote a friend in the employ of the firm in regard to my wants, and he sent me some very choice Triumph potatoes, and also included some Irish Cobblers. Here is what he says about the latter:

Brother Root:—The Cobblers are as early as Bliss, and heavier croppers; but they need heavier fertilizing than the late varieties, as they have to ripen their crop in two weeks less time than the late varieties. If I can get my hands on an extra-fine strain of Golden Bantam corn I will mail it. By passing along among the farmers' wagons in August one often finds a particularly fine strain of vegetable. I saw a farmer with fancy Golden Bantam last summer, but failed to take his name and address.

The Irish Cobbler is supposed to be a sport (origin unknown). It is evidently a sport, not a seedling, because the type is not fixed. You plant twenty true to name; and when you dig them you will find some have reverted to some one of the original parents, and some in a field will have blossoms of different colors. The buyer thinks he has been given mixed seed; but it is simply some tubers that reverted, and consequently the careful Aroostook farmer keeps "roguing" out the varieties in order to hold the type. Now, the type is this ugly square-shaped deep-eyed tuber with a deep cavity at the stem end, and an ugly, deep, puckered-up eye at the seed, and it very much resembles a Naval; but this type is very early, and a heavy yielder. It must have good rich soil, as it has to do its work in ten days less time than later varieties of potatoes.

EDWIN E. HARRINGTON.

Malden, Mass., May 21.

P. S.—*You owe me nothing* for this. I am now and always shall be indebted to you for so much good that I absorb from the last half of GLEANINGS.

E. E. H.

The above interested me greatly, for I have been for years watching the tendency of the different varieties of potatoes to sport. For instance, for several seasons I selected the hills of a certain variety that kept green after the others had died down. In this way I created a late variety from what had formerly been an early potato. In a like manner you can, by diligence, build up in a few years almost any kind of potato you want. The specimen of Irish Cobbler alluded to is a large nice potato, smooth and white, but with very deep eyes—so deep, in fact, that the potato was most ungainly-looking compared with the smooth

round Triumph potatoes, as shown in the picture on page 317, April 15th issue.

In many localities, I believe, the Irish Cobbler is getting to be a great favorite as an extra-early potato.

I extract the following from the *Florida Grower* concerning the Irish Cobbler.

The Irish Cobbler is a good variety which is growing in popularity, and has the double advantage of being a very good keeper and shipper. The price of good guaranteed seed from any reputable house varies of course a little, but may be taken at an average of \$1.75 a bushel, or about \$4.50 a barrel.

SESAME IN THE WEST INDIES; NOT ONLY A FOOD BUT A HONEY-BEARING PLANT.

Mr. A. I. Root:—It gives me pleasure to send to you, under separate cover, some sesame. It is raw seed. I hope you will make several trials of parching so as to get the best flavor. I like it best served hot with a little white sugar. Eat and enjoy it.

My stock is down to about a quart now, so I could not fill many orders; but, all going well, I will plant in a week or so, and should have 500 lbs. in four months. Our sesame patch is alive with bees when in bloom.

Judging from the sesame letter in GLEANINGS (Mr. Thompson's) there are different varieties, to say the least. Some people who have written me from Texas describe the plant in a way that does not fit mine. Our sesame shells itself out when ripe. Pods open wide, and seed scatters at the least touch.

When you get your sesame parched just right, grind some very fine and try it in wheat-flour pancakes.

JOHN M. BREWER.

Columbia, Isle of Pines, W. I., May 12.

RAISINS BY THE TON, ETC.

Raisins are packed in great sheds, like corn in the East. One of our neighbors often has 100 or 150 tons on hand at once. We have only a small place, and our biggest raisin crop so far has been about 14 tons.

I wish every one in the country could read Our Homes. I am clipping the item on cigarettes, from New Zealand, and sending to my mother.

We have voted our whole county dry excepting Fresno and one oil town, Coalingo, and in doing so drove three roadhouses out of existence in our vicinity. We are only four miles from Fresno, and of course they catered to the tougher element of the city.

Our women take the franchise sensibly, and are, as a whole, more intelligent voters than the men. We have on overwhelmingly large Armenian, Greek, Italian, and some Mexican and other foreign population. Our district school has 14 nationalities, while they claim 31 for Fresno. This means civic and moral as well as financial problems.

Fresno, Cal.

CORA DENHAM.

CLAIMS RELATIONSHIP.

Mr. Root:—I get GLEANINGS, and think it is fine. Every man who is against the whisky traffic is my brother.

Woodville, Okla.

E. L. CLIMMER.

Mr. Root:—I keep bees. I don't subscribe for GLEANINGS, but I often read it. Don't you think I ought to have a dashen?

Marengo, Ill., U. S. A.

C. C. MILLER.

HEALTH NOTES

THE HIGH COST OF LIVING—A NOVEL SUGGESTION.

We clip the following from the *Cleveland Plain Dealer*:

Germany has furnished this country a striking example of the benefits of adopting sanitary improvement, and has surprised even her own most optimistic advocates by proving that the expenditures that go for bettering community conditions not only pay by protecting health and giving comforts undreamed of to the people, but actually reduce the cost of living.

Invariably the proper paving, sewerage, and supplying of water lines to communities has added to the value of the property an amount in excess of the cost of the improvements. Even sewage disposal under the present extravagantly wasteful methods in which millions of dollars' worth of fertilizers are lost, may be considered a paying investment because no city will advance commercially or exist healthfully until some provision is made for the safe solution of this big problem. In like manner the various systems of maintaining proper sanitary conditions, which are operated at an apparent loss, such as cleaning streets, oiling roads, draining swamps, and enforcing proper rules of sanitation, are actually remunerative, because property in such communities demands higher rentals, and the people avoid heavy expense due to unnecessary sickness.

Let me add to the above that we not only reduce the high cost of living by such sanitary measures, but we add also to the pleasures and enjoyment of living. The man or woman who is well nourished, has plenty of pure air, drinks only pure water, and has a sponge bath every day, enjoys life to an extent that thousands of people know nothing of.

THE AIR WE BREATHE.

A. I. Root:—Wife and I find many interesting and helpful items in GLEANINGS. That which has from time to time been written concerning a careful or proper diet, or the preservation of health thereby, is read with much interest; but there is another phase of the subject of perhaps equal importance, about which *less* has been said; and that is, the air we breathe and the way in which we perform that function. Our beneficent creator has furnished an abundant supply of pure fresh air, and yet a large part of mankind appear to place little value on it, and are apt to make very meager arrangements for maintaining its purity. The fact is, that by far the greater part of men and women only about *half* breathe—that is to say, very seldom *fill* the lungs to the bottom, but form a habit of using only the upper part of the lungs; consequently the dark or corrupt stream of venous blood, as it returns to the lungs for purification, fails to meet with the requisite amount of oxygen, and hence is not changed, but passes on, entailing extra work on the kidneys and other organs of the body, resulting in a poisoned system and the manifold discomforts of ill health. Since the introduction of modern methods of heating houses, that much dreaded disease, tuberculosis, has rapidly increased—owing, no doubt, to the lack of proper or of sufficient ventilation. Wife and I are near to our three-score and ten. Our children are all gone to try the world for themselves, and we dwell alone. We sleep in a cold room, with windows up all kinds of weather. We still maintain the youthful glow; and while our neighbors all about us

have been greatly afflicted with colds and grip, we have been apparently immune. If people were less *afraid* of pure air, even if it is not always warm, and would cultivate the habit of deep breathing, it would free them from innumerable ills. Doubtless it is in accord with the will of God that we should understand and discreetly use the bountiful provision he has made for our sustenance and comfort while here below. And now "let us hear the conclusion of the whole matter. Fear God and keep his commandments, for this is the whole duty of man." Abiding in such a state we shall be willing faithfully to occupy until our Lord shall come; and whether the summons be "at midnight, at the cock-crowing, or in the morning," we shall go joyfully forth to meet him.

Barnesville, Ohio.

THOMAS DERVIES.

THE PANAMA CANAL ZONE AS A "HEALTH RESORT."

We clip the following from some journal, the name of which we have lost:

After living for five or six years amid conditions which have produced such a startling reduction in the death-rate, will the men who have dug the Panama Canal be able to find any city in the United States which is sufficiently cleanly and healthy for them to live in? Let us hope, says *The Journal of the American Medical Association*, that the ten thousand Americans, returning to this country after a practical demonstration of what modern scientific knowledge can do to prevent disease, may prove to be the little leaven which will leaven the entire lump. If this is the case, the indirect benefits of the Panama Canal will be incomparably greater than its commercial or military value.

If it is indeed true, as we have continual reports, that our doctors are able to make such a place as the Canal Zone one of the healthiest localities in the whole world, shall we not in time be able to do the same thing in other places where people live, and bring about like conditions? May God be praised for what is being accomplished in the way of banishing preventable contagious diseases.

FROM "PRODUCER TO CONSUMER;" FROM OUR GOOD FRIEND T. GREINER.

I have finally come to it, namely, bought a hand mill, and have begun to eat my "graham-flour porridge" for breakfast. When you have a good mill (mine cost \$3.35), and take good wheat, and clean it by hand to get the cockle and chaff out of it, and then wash it and afterward thoroughly dry it, you get a nice clean product, and a good breakfast food at nominal cost. We cook it after recipes given by Terry and in GLEANINGS, and eat it with about its own bulk of apple sauce and a generous quantity of real Jersey cream. Probably it tastes good eaten with honey. But people who have never tried it can hardly appreciate how good apple sauce and good cream go with any kind of such breakfast food. Apple sauce and cream (not milk), half and half, alone make a dish fit for a king. But almost all cereals can be made to taste good when eaten with real cream or with good honey. My boys took quite a fancy at once to the home-made graham breakfast dish, and prefer it to shredded wheat, puffed wheat, and some of the other breakfast cereals we have been in the habit of using.

Your muffins are not so bad either; but they are

no cure for the high cost of living. When the recipe calls for three quarters of a cup of sugar, two eggs, and a chunk of butter, etc., all this for a very small batch, it cannot be said to be a very cheap food. Fresh eggs are 50 cents a dozen in our local stores; but, how many people have good honey or plenty of apples and real Jersey cream? And how many have strictly fresh eggs? I am thankful for living on the farm, even if it is a comparatively small one.

T. GREINER.

La Salle, N. Y., Jan. 27.

I am very glad indeed to get this testimonial from so good an authority. Although it has been talked over and over about the saving in cost by grinding your own wheat, and the still more important saving of doctors' bills, I fear few people realize what it amounts to. One great reason for the present "high cost of living" is because of the fashion of buying packages of food in paper boxes and tin cans. And even the farmers who grow the wheat, I fear, quite often send their wheat away, and pay for having it manufactured into cereals fixed up in fancy pasteboard boxes, paying profits to the manufacturer, middleman, and grocer, and finally getting the same wheat that grew on their own farm, or may have done so, and do not get as good wheat nor as delicious food as outlined in the above by friend Greiner. Apple-sauce and cream, and ground-wheat mush, are about the most delicious foods I know of, and also the most nourishing, so far as my experience goes. May God be praised for apples, and wheat and cream.

ROBBING SICK PEOPLE.

There is one institution that seems to be untiring in its efforts in exposing the many medical fakes, and that is the *Journal of the American Medical Association*, 535 North Dearborn St., Chicago. Every little while we get a pamphlet describing the methods employed by these proprietors of nostrums to fleece the unwary. Let me urge our readers to consult the above before sending money to *any* doctor or advertising "medical institute." Every little while they come out with a pamphlet to warn the public. From the list given I have selected the two following:

MURINE EYE REMEDY—PRICE 4 CTS.

This is a nostrum sold by two eclectic physicians of Chicago. While sold for \$1 an ounce, it is estimated that the stuff costs about 5 cents a gallon. The exploiters of Murine also conduct, as a side-line, a correspondence "college" of spectacle fitting—7 pages, illustrated.

THE OXYDONOR AND SIMILAR FAKES.

Gas-pipe therapy frauds. A description of the various worthless pieces of nickel-plated brass pipe that are sold to the gullible under the allegation that they possess curative value. Several variations of this fraud are on the market. Those dealt with in this pamphlet are the Electropoise, the Oxydonor, the Oxygenor, the Oxyphator, the Oxytonor, and the Oxybon—15 pages; illustrated.

What do you think of it, friends—a dollar an ounce for stuff that costs only five cents a gallon? The Department at Washington is carrying on investigations, and stopping the delivery of the mails of some of these parties. I notice Oxydonor is still getting money from the unwary, although it has been shown up in these pages for fully twenty years.

TEMPERANCE

DRUNKENNESS A DISEASE (?)

We clip the following from the *New Republic*:

Drunkenness is now almost universally recognized as a disease. Institutions all over the country, both public and private, have been instituted to cure this disease.

The newspapers all over the country carry advertisements of physicians and institutions who make it their business to cure this disease.

Medical societies all over the world are studying methods of curing this disease.

And while all this is going on, most States deliberately license saloons to spread this same disease for a share of the profit of the business.

By the way, what would you think of a man who wanted a license to spread hog cholera? That disease throughout the United States is one of the things that bring about the high cost of living, and millions of dollars are being lost because of it. Thanks to our Department of Agriculture,

however, our nation is getting the upper hand of it. Well, hog cholera kills *hogs*; but the booze business kills *men*—yes, men, women, and children; and the men it does *not* kill it reduces to the *condition* of hogs, or worse still. And yet we are *licensing saloons*—yes, right in the State of Ohio. What do you think of it?

THE UNITED STATES SUPREME COURT HITS THE LIQUOR BUSINESS ANOTHER TRE-MENDOUS BLOW.

We clip the following from the *Lansing Daily State Journal*:

LIQUOR'S BODY BLOW.

No longer is the widow of a drunkard to remain the helpless victim of the saloonkeepers who contributed to her husband's wrecked life. The United States Supreme Court has just so decided. Nor is it necessary that the victim die an accidental or violent death. The case in which the decision was rendered

is one in which the victim was wrecked by alcoholics and finally succumbed to disease brought on or aggravated by liquors.

Under the ruling, not only is the saloonkeeper liable for damages but his bondsmen also. Undoubtedly the first result of the decision will be the filing of thousands of personal-damage suits all over the country. There will be no haggling over the law. The United States Supreme Court has settled that. It will be merely a case of proving facts.

A second result of the ruling will be bankruptcy for a number of saloonkeepers whose cupidity and avariciousness have prevented them from heeding the demands of friends and relatives not to sell to known victims of liquor. Another result of the ruling will be a decided inclination of casualty companies and individuals against going on the bonds of saloonkeepers; and without bonds, licenses cannot be secured.

The country may expect a tremendous howl from the liquor interests and the organs in their control; but the decision will stand because it is right. It is in complete harmony with that changed and changing public opinion in regard to the liquor business. More and more the public is coming to look on liquor-selling as a form of slavery the victims of which are as much deprived of their manhood's rights to life, liberty, and the pursuit of happiness as ever was a black man, and public opinion is set against it as it was against slavery. The courts are responding to the changing public opinion. The liquor interests will not be able to change the law until they change the tide of public opinion.

"PROHIBITION DOESN'T PROHIBIT."

We clip the item below from *Farm and Fireside*:

SMILING THROUGH TEARS IN KANSAS.

87 counties without any insane.
54 counties without any feeble-minded.
96 counties without any inebriates.
38 counties without any poor-houses.
53 counties without any prisoners in jail.
65 counties without a representative in the State penitentiary.

With the above staring us in the face, how can any man (or woman) vote for the retention of the liquor-traffic? Think of it—65 counties without a "representative" in the penitentiary.

SOMETHING FURTHER IN REGARD TO KANSAS.

From an address delivered before Congress by Ernest H. Cherrington, Dec. 10, 1913, we clip the following:

EFFECT OF PROHIBITION ON CRIME, PAUPERISM, AND INSANITY.

The Supreme Court of the United States is authority for the declaration that "the statistics of every State show a greater amount of crime and misery attributable to the use of ardent spirits obtained at these retail liquor saloons than to any other source."

No State of the Union has given prohibition so fair a trial as has Kansas. To-day that State presents the unparalleled record of almost two-thirds of its counties without a single prisoner serving sentence for crime, while in some of the counties a jury to try a criminal case has not been called in ten years.

Never mind, friends, if I have harped on this matter several times before. What does it mean when it can be truthfully said that two-thirds of the counties are without a

single prisoner serving a sentence for crime, and that in some counties a jury to try a criminal case has not been tried in *ten years*? What is the matter with the people of the United States that they should continue to "vote wet" when such facts as these are before them?

EDISON ON CIGARETTES, ETC.

One of our good friends sends us a clipping from the *Detroit Free Press*. It seems that Edison posted a notice on his factory in West Orange, N. J., reading, "Cigarettes not tolerated. They dull the brain." It seems that Henry Ford, the great automobile man, indorsed Edison. This aroused the ire of Percival F. Hill, President of the American Tobacco Co., and he makes a feeble attempt to defend the use of cigarettes. After reading his defense it occurs to us that *the money* that comes out of it is what they are after. We extract the following, taken from the *Detroit Free Press*:

"Inasmuch as millions of men use cigarettes, and perhaps even a larger percentage are educated people, the charge of feeble-mindedness lies against an overwhelming proportion of the commercial, professional, artistic, musical, and industrial world," continued Mr. Hill.

TREMENDOUS INCREASE IN 13 YEARS.

Mr. Hill gave figures showing that 15,812,092,000 cigarettes were made in the United States in 1913, against 2,600,000,000 in 1900, or an increase of 700 per cent in 13 years.

Mr. Hill said further that Mr. Edison should prove his assertion, in justice to millions of intelligent cigarette smokers, or give the manufacturers an opportunity to disprove it.

Our good friend A. N. Clark, of Lansing, Mich., who sends the clipping, comments as follows:

This defense of the cigarette by President Hill not only demonstrates the weakness of the defense, but indicates the moral make-up of a character so typical among modern trust officials.

Lansing, Mich., May 18. A. N. CLARK.

BRYAN IN REGARD TO WOMAN SUFFRAGE.

In speaking of the women's victory in stopping the Colorado war, Mr. W. J. Bryan uttered the following, which we clip from the *Woman's Journal* for May 23:

"The battle is already won in ten States and in Alaska. Four more will come in line next November. The Eastern States are beginning to line up. The women of America are going to vote soon. No party question will prevent them; no color line will stop them; no States rights issue will deter them. No State has any right to deny to half its citizens the right to share in government by the exercise of suffrage anywhere under the American flag. As citizens of the great American Republic, as members of the American family, and as units of the great American home, we will not permit such a travesty on democracy to exist any longer in this land of equal opportunity."

Amen to the above!



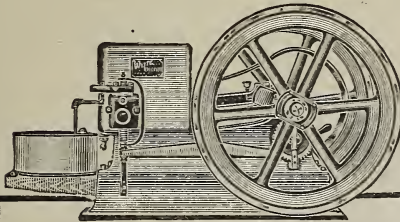
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Use it every day

MOUTH hygiene is incomplete without a safe mouth-wash. Rinse the mouth with Listerine after brushing the teeth. It imparts a sense of cleanliness and purification and neutralizes breath odors. Listerine has enjoyed the confidence of physicians and dentists for more than thirty years.

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Sizes 2 to 22 H-P. stationary and mounted, (skids and trucks) with semi-steel detachable cylinders, vertical valves, and other features of merit without which no engine is now high-grade. Starts easily; no cranking; run without watching, 24 hours a day. Cheaper power, per horse, than ever before.

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I give you lowest factory prices ever known for strictly high standard engines of proven worth. No reasonable terms refused if you don't wish to pay all cash. Get my new book FREE with latest prices.

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REGISTERED and will stay away from beehives so protected. Write for circulars.

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Dept. 103, Milwaukee, Wis.



Select ITALIAN Queens

SELECTED FOR BUSINESS. NOW READY.

Under date of December 24, 1913, a queen-breeder known the world over, and whose 1913 queen sales were well above the 5000 mark, writes:

"I had occasion, through the invitation of one of your customers, to visit his bee-yard where he showed me some of your stock. They were ordinary Italians, but in their storage he told me they excelled any other strain he had in his yard, and he had a good number of queens from other breeders. As he recommended these bees so highly, and I am always in the market for something new and better, that is the reason I am asking you to book me for the half-dozen queens next season."

"The proof of the pudding is in the eating," and I solicit your trial orders this season. Now is the time to order a half-dozen and try them out before requeening time in August and September. Safe arrival and satisfaction guaranteed. Money promptly returned if unable to fill orders on date specified. Apiary under State inspection.

Untested queen, 75 cts.; six, \$4.00; 25 or more, at 60 cts.; 1 lb. bees with untested queen in Root cage, \$2.50; six 1-lb. packages of bees with queens, \$13.00. Circular and a "Good Cheer" blotter free.

J. B. HOLLOPETER, Pentz, Clearfield Co, Pennsylvania



THREE-BANDED ITALIAN QUEENS

Rearred from our best stock in strong colonies and mated to select drones of superior honey-gathering strains. Bees that are industrious, hardy, and gentle; good red-clover workers,

and good winterers. After July 1.

Untested, 75c each; six, \$4.00; twelve, \$7.50. Tested, \$1.00 each.

Prices for larger quantities furnished on application. Prompt service, purity of mating, safe arrival in the U. S. or Canada, and satisfaction guaranteed.

H. C. SHORT, WINCHESTER, OHIO

W. H. LAWS

is prepared to take care of all your queen orders the coming season.

Twenty-six years of careful breeding places Laws' queens above the usual standard.

My bees, in my own and in the hands of others, have taken first premiums at the leading fairs all over the United States; and, in the hands of single individuals, have gathered over a car of honey in one season.

Tested queens ready now. Each, \$1; 12 for \$10.

Untested, after April 15, breeding queens, about fifty of the finest ready at any time; each, \$5.00.

W. H. LAWS, Beeville, Bee Co., Texas

Marchant's Island Bred Queens

Bred from selected mothers, and mated to isolated drones of a different strain. My aim is quality and not quantity. So if you want any of these choice purely mated three-banded Italian queens order now or you may not get them, as I am going to rear only a limited number. No disease, and your money back if not satisfied. The A. I. Root Co. use my queens, which is proof of their quality.

No need to write for lower prices.

Reference, The American Exchange Bank of this city.

Prices—Untested, single, \$1.50; 6 for \$6.00; 12 for \$10.00; in lots of 25 or more, 75 cts. each. Select tested, \$3.00. Breeders, \$5.00 and \$10.00.

A. B. Marchant, . . Apalachicola, Florida

Queens - Queens

Bees by the Pound and Full Colonies

From a superior strain of THREE-BANDED ITALIANS. . . Hardy, gentle, and they are hustlers. . . . Guaranteed to please you.

Send for My 1914 Descriptive Catalog

I have a large stock of modern BEE SUPPLIES always on hand. ROOT'S GOODS at factory schedule of prices, packed and delivered to my station. All orders will receive prompt and careful attention.

Earl M. Nichols, Lyonsville, Mass.

Archdekin's FINE ITALIAN QUEENS

THREE BANDED

Bred for Persistent Profitable Production of Honey. Prolific, hardy, gentle. The bee for pleasure or profit. One customer says, "Your queen soon had her ten frames running over with bees that are hustlers." Cells built in strong two-story colonies, and mated by best-known methods. No disease. Satisfaction guaranteed. Orders filled promptly. Ready May 20. Untested, \$1.00 each; six for \$5.50; dozen, \$10.00. Select tested, \$2.00 each.

J. F. Archdekin, Rt. 7, St. Joseph, Mo.

MILLER'S STRAIN ITALIAN QUEENS

By RETURN mail after June 5th to 10th, or money refunded. Bred from best RED-CLOVER strains in the U. S. In full colonies from my SUPERIOR BREEDERS; Northern bred for business; long-tongued; leather-colored or three-banded; gentle; winter well; hustlers; not inclined to swarm; roll honey in. One untested, \$1.00; 6, \$5.00; 12, \$9.00. One select untested, \$1.25; 6, \$6.00; 12, \$11.00. A specialist of 17 years' experience. . . . Safe arrival and satisfaction guaranteed.

I. F. MILLER, BROOKVILLE, PENNSYLVANIA

PURE
Extracted

HONEY
From the Apiary of
I. J. Todd,
Columbia,
Ohio.

WARRANTED
PURE HONEY
From the Apiary of
FRANKLIN E. JAMES,
71 Arnold St., New Bedford, Mass.

2lbs.
Pure Extracted
HONEY
From the Apiary of
W. E. Fowler,
Clintonville, Ct
[Label No. 530. 1000 only \$1.60.]

No. 430. 1000 \$1.30. No. 375. 1000 only \$1.30.

No extra charge for labels printed on gummed paper. Label No. 126. 1000, 60c.

Space will not permit us to describe fully the above labels. Write for catalogue.
Address **PEARL CARD CO., Dept. A, Clintonville, Conn.**

QUEENS!

Quirin's Improved Superior Italian Bees and Queens. . . They are Northern Bred and are Hardy. . . Over 20 Years a Breeder.

	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested . . .	1.00	5.00	9.00	.75	4.00	7.00
Tested	1.50	8.00	15.00	1.00	5.00	9.00
Select tested	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei	3.50	20.00	35.00	3.25	18.00	32.00
8-frame colony	6.00	30.00		5.00	25.00	
10-frame colony	7.50	38.00		6.50	32.00	
1-2 lb pkg. bees	1.50	7.00		1.00	5.00	
1-lb. pkg. bees	2.00	10.00		1.50	8.00	

BREEDERS—the cream selected from our entire stock of outyards; nothing better. These breeders \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames. Do not write for lower prices even if you want 1000 queens or 100 colonies. Price is already low, considering the quality of our stock and prompt service.

Above price on bees by pound, nuclei, and colonies, does not include queen. You are to select such queen as you wish with the bees, and add the price.

**ALL ORDERS FILLED PROMPTLY
FROM NOW ON.**

Send for testimonials. Orders booked now.

H. G. Quirin - the - Queen - Breeder
BELLEVUE, OHIO



Get Your QUEENS Direct from Italy

May to September.—Tested, \$2.60; Champion Layers, \$4.00. Dead queens replaced if box is returned unopened. Discount to dealers or for quantities. Beautiful unsolicited testimonials. Honest dealing. For further particulars write to

MALAN BROTHERS
Queen-breeders
Lucerna, San Giavanna, Italy



Am now shipping Untested Queens from my

Celebrated Pedigreed Strain

My bees are the product of many years of breeding by SWARTHMORE and HENRY ALLEY. Both names stand out like beacon lights among our past and present breeders, for the best queens ever produced in the United States. Never had foul brood.

Swarthmore Apiaries
Swarthmore, Pa.

Goldens that are Golden

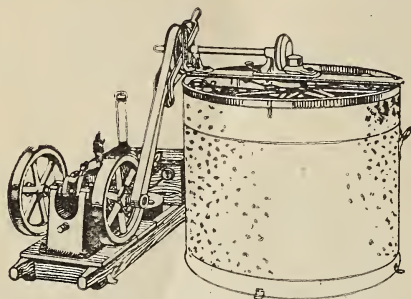
I have disposed of business in Philadelphia, and will raise all queens that I possibly can the coming season, and will fill all unfilled orders first. Queens are getting better each year. Prices: Select untested, \$1.50; tested, \$3.00; breeders, \$5 to \$10. Send for booklet. GEO. M. STEELE, 30 So. 40th St., PHILADELPHIA, PA.

ITALIAN QUEENS--NORTHERN BRED

Superior winterers; descriptive list free. Bees by the pound, Untested, \$1.00; select tested, \$1.50. Plans 'How to Introduce Queens,' 15c; 'How to Increase,' 15c; both for 25 c. E. E. MOTT, Glenwood, Mich.

ROOT'S POWER EXTRACTORS

for the LARGE PRODUCER for 1914



The late W. Z. Hutchinson, when asked as to what would combine best with beekeeping, said, "The best thing to go with bees is—more bees." If more bees is the slogan, then the best equipment should be installed. This would be an outfit that will handle advantageously the product of 200 or more colonies with a minimum of time and labor.

POWER EXTRACTING OUTFIT.—The value of this cannot be gauged entirely by the number of days it is used during the season. It should be remembered that it displaces a large amount of extra equipment in the way of extra supers and combs. The extracting must be done quickly in order to hold in check the swarming that is sure to follow unless room is given when needed. The amount thus saved, including reduction of labor and time, will materially reduce cost of production.

ENGINE.—This should not be selected without due examination. There are certain types of gasoline-engines that are not fitted for driving honey-extractors. Machines requiring to be started and stopped an endless number of times during the day require an engine of special construction, and the beekeeper will do well to investigate thoroughly these points before purchasing. Our new engines, the "BUSY BEE," are selected for and are exactly adapted for just this kind of work.

CAPPING-MELTER.—No extracting house is complete without one. We have a number of styles and sizes to select from. Illustrations of all these will be found in our large catalog. The smaller sizes are intended to be used with wax-presses, which also are shown.

HONEY-KNIVES.—For rapid and easy work our new steam honey-knives can't be beat. Extra tubing is furnished when ordered. Send for our new 34-page book, "Power Honey-extractors," describing these fully.

These equipments are supplied by various dealers throughout the country. Information as to nearest dealer on request.



The A. I. Root Co., Medina, Ohio

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Extracted honey, quality fine. Price 9 cts. per lb. J. S. HANKE, Port Washington, Wis.

FOR SALE.—Finest quality buckwheat honey in cans and kegs. Cloyer honey all sold. C. J. BALDRIDGE, Kendaia, N. Y.

FOR SALE.—No. 1 white comb, \$3.00 per case; fancy, \$3.25; 24 Danz. sections to case, six cases to carrier. WILEY A. LATSHAW, Carlisle, Ind.

FOR SALE.—Orange honey; 60-lb. cans, 2 in a case, at 9 cts. Sample free. JAMES MCKEE, Riverside, Cal.

No. 1 white gallberry comb honey in 24-lb. shipping-cases, \$3.00 per case. J. WARREN SHERMAN, Valdosta, Ga.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Comb honey and beeswax. State what you have and price. J. E. HARRIS, Morristown, Tenn.

WANTED.—Honey, extracted and comb. Will buy or handle on commission. Beeswax—will pay highest price. HILDRETH & SEGELKEN, New York, N. Y.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. E. M. DUNKEL, Osceola Mills, Pa.

FOR SALE.—Better hives for less money. Beekeepers' supplies and standard-bred Italian bees. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

Peerless hives are good hives. Write for catalog and testimonials.

L. F. HOWDEN MFG. Co., Fillmore, N. Y.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. Co., Greenville, Texas.

FOR SALE.—500 cases of empty five-gallon honey-cans at 25 cts. per case. J. E. CRANE & SON, Middlebury, Vt.

The A. I. Root Co.'s Canadian House, Dadant foundation, bees, queens, honey, wax, poultry supplies, seeds. Write for catalog. THE CHAS. E. HOPPER Co., 185 Wright Ave., Toronto, Ontario.

FOR SALE.—30 dovetailed 10-frame hives with Colorado covers, fine condition; price 90 cts. each without frames, or \$25 for the lot. L. F. HOWDEN MFG. Co., Fillmore, N. Y.

"Root" bee supplies, "American" honey-cans, and "Weed Process" foundation exchanged for beeswax and honey. Cash prices on request.

SUPERIOR HONEY Co., Ogden, Utah.
(Branch at Idaho Falls, Idaho.)

Why use cans? Kegs are cheaper and easier to fill and handle; 160-lb. size with 2-inch hole and plug, 50 cts. each f. o. b. factory.

N. L. STEVENS, Venice Center, N. Y.

FOR SALE.—1150 No. 2 $4\frac{1}{4} \times 1\frac{1}{2}$ sections; 20 8-frame hives; 5 excluders; 35 T supers, 8-frame; 10 8-frame hive-bodies, K. D.; 1 2-frame Cowan extractor, never used, and one bee-tenant. Price \$47. I. W. SCOTT, Bement, Ill.

FOR SALE.—110 8-fr. bodies, extracting combs; 20 8-fr. bodies, new frames, full sheets; 55 8-fr. bodies, full old frames; 90 8-fr. bodies, full new frames; 144 bottoms; 168 covers, ventilated gable; 80 lbs. medium-brood foundation; 350 new frames, flat; 100 8-fr. bodies, new, flat; 50 covers new, flat; 160 wood-bound queen-excluders. All bodies nailed and painted. Frames are Hoffman self-spacing and wired. HOMER MATHEWSON,
70 Bennett Ave., Binghamton, N. Y.

WANTS AND EXCHANGES

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Idaho.

REAL ESTATE

Virginia fertile farms, \$15 an acre up. Easy payments. Send names of two friends interested in Virginia, and receive our beautiful magazine one year free. F. H. LABAUME, Agr'l Agt. Norfolk & Western Ry., Room 246, N.&W. Bldg., Roanoke, Va.

BEEES AND QUEENS

Phelps' Golden Italian Queens will please you. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Italian bees, \$3.00 per colony. W. C. DAVENPORT, 2201 Pioneer Road, Evanston, Ill.

Pure Italian bees or their hybrids in L. 10 frames, wired, full foundation, 1 or 100. JOS. WALRATH, Antioch, Cal.

Connecticut queens, 3-banded Italians only; large and vigorous; ready May 15. Price list. W. K. ROCKWELL, Bloomfield, Ct.

Select untested queens, 75 cts. each; bees, \$1.25 per pound. All good; guaranteed to give satisfaction. THE STOVER APIARIES, Mayhew, Miss.

Phelps' Golden Italian Bees are hustlers. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

Try my bright queens. Select untested, \$1.00; \$9.00 per 12. Safe arrival and satisfaction guaranteed. M. BATES, Rt. 4, Greenville, Ala.

Leather-colored Italian queens June 15. Circular free. No foul brood. One, 85 cts.; 6, \$4.50; dozen, \$8.00. D. G. LITTLE, Hartley, Iowa.

Three-band Italian queens. Tested, \$1.00; untested, 75 cts. Ready May 15. S. CLICK, Mt. Jackson, Va.

FOR SALE.—150 colonies tested Italian bees; honey-house, tent-house, and complete extracting equipment. H. E. DIKE, Calabasas, Cal.

FOR SALE.—Fine Italian queens. See my large ad. in this issue.

J. F. ARCHDEKIN, Rt. 7, St. Joseph, Mo

Golden Italian queens, Northern bred. Have wintered perfectly. Untested, 1, \$1.00; dozen, \$10.00. J. STUART SCOFIELD, Kirkwood, N. Y.

Golden yellow Italian queens my specialty. Untested, \$1.00; tested, \$1.50. Ready April 1. Safe arrival guaranteed. E. A. SIMMONS, Greenville, Ala.

FOR SALE.—By return mail, select tested Italian queens, \$1.00 each; untested, 75 cts.; breeders, \$2.00; grades, 50 cts. No disease. WILMER CLARKE, Box 200, Earlville, Ind. Co., N. Y.

Untested Italian queens, 75 cts. each; six, \$4.00; 1 lb. bees with queen in Root cage, \$2.50. Circular and "Good Cheer" blotter free.

J. B. HOLLOPETER, Pentz, Pa.

Choice Italian virgins, 3 for \$1.00; warranted, 75 cts. each; tested, \$1.25; breeding queens, \$2 to \$5 each by return mail. STANLEY & FINCH, 1451 Ogden Ave., Chicago, Ill.

Northern-reared queens of Moore's strain of leather-colored three-banded Italians. After June 20, untested, \$1.00 each; 6 for \$5.00; 12 for \$9.00. RAMER & GLUEN, Harmony, Minn.

QUEENS OF QUALITY.—Three-band, leather color, select untested, 75 cts. each; \$8.00 per dozen. Satisfaction guaranteed. Circular free.

J. I. BANKS, Liberty, Tenn.

Golden Italian queens, tested, \$1.00; select tested, \$1.25; untested, 70 cts.; dozen, \$8.00; untested, after July 1, 60 cts.; dozen, \$7.00.

D. T. GASTER, Rt. 2, Randleman, N. C.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00. WM. S. BARNETT, Barnett's, Va.

Bees and queens; three-banded Italians; 1 lb. bees with queen, \$2.00; ½ lb. with queen, \$1.50. Untested queens, one, 75 cts.; 6, \$4.25; 12, \$8.00. Safe arrival. W. J. FOREHAND, Ft. Deposit, Ala.

Queens by return mail, or your money back. See larger ad. Write for free booklet, "How to Transfer, Get Honey, and Increase."

J. M. GINGERICH, Arthur, Ill.

Three-banded red-clover bees. Nuclei, from one to three frames, at \$1.00 a frame. Tested queen, \$1.25 extra. Untested queens, \$1.00. Full colonies in 10-frame hives, \$8.00. Queens extra.

J. W. LEIB, 563 S. Ohio Ave., Columbus, Ohio.

FOR SALE.—After June 20, fine golden Italians; untested, 75 cts. each; six, \$4.00; tested, \$1.25 each; few choice breeders, \$3.00 each. No better honey-gatherers. Will resist brood diseases. Cash with order. EDW. REDDOUT, Box 43, Lysander, N. Y.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; 1 frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginners' outfit, for stamp. THE DEROY TAYLOR CO., Newark, N. Y. (formerly Lyons).

Queens and bees for sale.—See our large advertisement elsewhere in this journal, and read The A. I. Root Co. letter to us regarding our queens. Write at once for large bee and queen circular.

THE PENN CO., Penn, Miss.

California Italian queens, three-banded and Golden; also bees by the pound for June and later delivery. Booked full till June 1. Circular and price list free. Write J. E. WING,

155 Schiele Ave., San Jose, Cal.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnett's, Va.

Golden Untested Italian Queens, \$1.00; six for \$5.00. These bees are gentle, prolific, energetic, and pretty. Under date of May 2 an old customer—Chas. Stewart, Johnstown, N. Y., State Bee Inspector—writes, "Received in fine condition 10 queens." Ready to mail. J. B. CASE, Port Orange, Fla.

Golden and three-band Italian and Carniolan queens ready to ship after April 1. Tested, \$1.00; 3 to 6, 95 cts. each; 6 to 12 or more, 90 cts. each. Untested, 75 cts. each; 3 to 6, 70 cts.; 6 or more, 65 cts. each. Bees, per lb., \$1.50; nuclei, per frame, \$1.50. C. B. BANKSTON, Buffalo, Leon Co., Tex.

Try Forehand's three-band Italian queens. They are raised from imported stock, unexcelled for honey and gentleness. One untested, 75 cts.; 6, \$4.25; 12, \$8.00. Send me your order; and if not satisfied I will return money. Safe arrival.

N. FOREHAND, Rt. 2, Brewton, Ala.

Dunn's Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers. March 1 to Oct. 15: One, mated, 75 cts.; 6, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$3.00; breeders, \$10.00. L. J. DUNN, Queen-breeder, Box 337G, Rt. 6, San Jose, Cal.

Italian untested queens by return mail, or soon. We keep increasing our output, and hope to keep up with orders. Our queens we guarantee will satisfy you; no disease. One for 75 cts.; 6 for \$4.25; 12 for \$8.00; 100 for \$60. Tested queens, \$1.25. If you are particular about your queens, we wish to supply you. W. D. ACHORD, Fitzpatrick, Ala.

Golden and three-banded Italians—ready March 1. They have been bred for three points—prolificness, gentleness, and honey-gathering qualities. Select untested, each, 75 cts.; six, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$1.50; select tested, \$2.00; three-banded breeders, \$4.00; golden breeders, \$5.00.

GARDEN CITY APIARY CO., Rt. 3, Box 86, San Jose, Cal.

FOR SALE.—Three-banded Italian queens, from the best honey-gathering strains, that are hardy and gentle. Untested queens, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. Selected queens, add 25 cts. each to above prices. Breeding queens, \$3.00 to \$5.00 each. For queens in large quantities, write for prices and circulars.

ROBERT B. SPICER, Wharton, N. J.

FOR SALE.—Italian queens, the three-banded leather-colored hustlers. Queens are bred from a few select colonies, the record-breakers out of over 700. Tested, \$1.25; 6, \$7.25; select, \$1.50; 6, \$8.75; untested, 75 cts.; 6, \$4.25; 12, \$8.25; select, 90 cts.; 6, \$5.00; 12, \$9.00. Breeders, \$3.00 to \$5.00 each. Queens are ready to mail now. Satisfaction and safe arrival guaranteed. No disease.

BROWN & BERRY, Hayneville, Ala.

Famous North Carolina bred Italian queens for sale.—(red-clover three-banders); honey-gatherers, good as the best. Strictly reared from Geo. B. Howe's best breeders, mated with Root's, Moore's, Davis' select drones; bees that get the honey; free of disease. Untested, 1, 75 cts.; dozen, \$7.50. Select untested, 1, \$1.00; dozen, \$9.00. Tested, 1, \$1.25. Select tested, \$1.50. Extra select tested, \$2.00. Breeders, \$3.00 to \$5.00.

H. B. MURRAY, Liberty, N. C.

BEEES AND QUEENS.—Queens bred from Doolittle's best stock, untested, 60 cts. each; \$6.60 per dozen; \$50 per 100. Same stock of year-old queens removed from our colonies to prevent swarming, 50 cts. each; \$5.40 per dozen; \$40 per 100. Delivery guaranteed. Nuclei, two-frame, \$1.50; three-frame, \$2.00. Add price of above queens wanted. We have a rare bargain of apiary of several hundred colonies of bees for sale on easy terms. Particulars on request.

SPENCER APIARIES, Nordhoff, Cal.

If you need queens by return mail we can fill your order. Three-band Italians only. Tested, \$1.00 each; untested, 75 cts.; \$8.00 per dozen. All queens guaranteed to be good, or money refunded. J. W. K. SHAW & Co., Loreauville, Iberia Parish, La.

Three-banded Italian queens: Before July 1, untested, 1, \$1.00; 6, \$5.00; 12, \$9.00; select untested, \$1.25; 6, \$6.25; 12, \$11.00. After July 1, untested, 1, 75 cts.; 6, \$4.00; 12, \$7.00; select untested, 1, \$1.00; 6, \$5.00; 12, \$8.50. One-frame nucleus, 75 cts.; two-frame, \$1.50; three-frame, \$2.25. To each nucleus add price of queen. Our queens are reared in a locality where there has never been disease, and reared from strong vigorous colonies. The apiary is under most competent supervision. Safe arrival and satisfaction guaranteed.

HORNER QUEEN & BEE Co., Ltd., Youngsville, Pa.

Guaranteed purely mated 3-band Italian queens, J. E. Hand strain, bred for gentle, prolific, honey-gathering, wintering, and long life. State Inspector's certificate. Queens by return mail, or your money back. Before July 1, select untested, one, \$1; 6, \$5; tested, one, \$1.25; 6, \$7; select tested, one, \$1.75; 6, \$9. Breeders, \$5. After July 1, select untested, one, 75 cts.; 6, \$4; 12, \$7; tested, one, \$1; 6, \$5; 12, \$9. Select tested, one, \$1.25; 6, \$7; 12, \$13. Breeders, \$4; 10 per cent discount on 30 days' advance orders. Safe delivery guaranteed in United States and Canada. Reference, First National Bank. J. M. GINGERICH, Arthur, Ill.

POULTRY

FOR SALE.—Sicilian Buttercup eggs for hatching, \$1.50 per 15 eggs.

L. S. GRIGGS, 711 Avon St., Flint, Mich.

Eggs.—20 for \$1.00; leading varieties prize poultry, pigeons, hares, etc. Booklet free. Large illustrated catalog, 10 cts. F. G. WILE, Telford, Pa.

S. C. White Minorcas, \$3.00 per 15; R. C. Buff Leghorns, S. C. Brown Leghorns, and Partridge Wyandottes, \$1.00 per 15.

HILLCREST FARM, Winchester, Ind.

Runner and Pekin Ducklings and hatching eggs. White-egg strain. Blue-ribbon stock. Also drakes. Catalog for stamp.

THE DERBY TAYLOR Co., Newark, N. Y.

HELP WANTED

WANTED.—Experienced beekeeper for comb honey. W. LINDENMEIER, JR., Ft. Collins, Colo.

WANTED.—Reliable man of good habits to work with bees the coming season. State age, experience, and wages first letter.

THE ROCKY MOUNTAIN BEE Co., Forsyth, Mont.

WANTED.—Man (married preferred) experienced in queen-raising; employment by the year on a salary and percentage.

OGDEN BEE AND HONEY Co., Ogden, Utah.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & Co., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00 by return mail. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and equipment. J. H. M. COOK, 70 Cortlandt St., New York.

QUEENS.—Improved red-clover Italians bred for business June 1 to Nov. 15, untested queens, 75c each; dozen, \$8.00; select, \$1.00 each; dozen, \$10; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

PUBLICATIONS ON BEE CULTURE

(Please use coupon below, checking the numbers of items wanted)

The pamphlets and booklets listed below are of more than ordinary interest.

1 MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE. By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.

2 THE BEEKEEPER AND FRUIT-GROWER. A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how beekeeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honeybees in close proximity to their blossoming fruit. Free.

4 CATALOG OF BEEKEEPERS' SUPPLIES. Our complete catalog will be mailed free to any address on request.

7 SPRING MANAGEMENT OF BEES. A 14-page booklet detailing the experiences of some successful beekeepers, and giving instructions on this oftentimes perplexing matter. Price 10 cts.

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SPECIAL NOTICES

By Our Business Manager

BUCKWHEAT SEED.

We are prepared to ship from here or Chicago either silverhull or Japanese buckwheat seed at \$3.00 per 100 lbs., bags included. We can also supply silverhull from eastern New York, while the supply is still unsold, at the same rate. Any less than 100 lbs. would go from Medina at \$1.65 per bushel of 50 lbs.; 90 cts. per half bushel; 50 cts. per peck; 5 cts. per pound, mail charges extra, if sent parcel post.

BEESWAX WANTED.

We are still using beeswax at the rate of over 30,000 pounds a month, and have only two to three weeks' supply ahead of us. Very soon the demand for comb foundation will let up; but we expect to continue buying for next season. Prices have reached a very high level in recent months, and are bound to come down somewhat in the months ahead. As you accumulate supplies in extracting, let us hear from you when you have it ready for market, stating quantity, and we will quote best price available at time offered. For shipments started before July 1 we will continue to pay 33 cents cash, 35 trade, delivered here for good average wax. Send shipping receipt with weight inserted, and write us, giving gross tare and net weight. Be sure your name or other identifying mark is on the package, whether sent by freight, express, or mail.

SPECIAL NOTICES

A. I. Root

THE AMERICAN POULTRY JOURNAL YEARBOOK FOR 1914.

The above is the title of a very pretty and useful poultry-book published by the American Poultry Journal, 542 South Dearborn St., Chicago. It contains 408 pages, 8 colored pictures of chickens, and a lot of valuable matter, especially regarding the progress of the poultry business up to date. Nearly half the book is occupied by show reports, which are not particularly interesting to me, mostly because I have not time to go into it. But there is one article in it by our old friend Stoddard that I think is worth the price of the book and more too. It interests me because of poultry-keeping in warm climates, where expensive houses are not needed. And let me digress right here to mention the fearful outlay of money that is worse than wasted by building poultry-houses and chicken-coops of all sorts to "keep the fowls warm." All over Florida these structures, especially those belonging to people who came from the North, who think chickens must have a roof, when they would be a thousand times better off without, would be more profitable if the walls were of poultry-netting instead of boards that cost money.

Our good friend Stoddard declares there is no particular need of a roof. After some experience, however, I find that even the chickens that roost in the trees prefer to get under a shelter when we have a cold storm. But one of the problems in the South is to prevent the chickens from roosting in the trees; and I for one would *permit* them to do so were it not for the difficulty of getting hold of them when we want one, and the danger from owls, which sometimes do considerable damage among the chickens in the tree-tops. Friend Stoddard, like myself, has run against the problem of getting them out of the trees and making them go into their appointed roosting-places. It seems he has also discovered, like myself, that it is not a very difficult matter to make them roost where we wish and not where *they* wish. Permit me to make a little extract from the way he does it:

"You will have to go out at dusk where they are, a few evenings at first, with a cloth tied to the tip of a fishing-pole, and gently admonish the adventurous birds that want to roost outside on top. If your birds are tame (as, of course, you have brought them up to be), and you use gentle tact, it is surprising how few lessons are necessary before they learn to love their proper perches inside, and take to them with unflinching regularity. Don't go in and thrash around until you get the whole gang scared out that

are already in. Why do I mention such trivial details? Well, there are so many poultry-keepers who are blessed fools, and no more fit to manage birds than to navigate a big ocean liner; and also there are many beginners who are intelligent, and only need to have these little things explained to them once for all."

There is another quite valuable article in regard to having a little yard and roosting-place for each laying hen while she is being tested, instead of using trap-nests. This comes from a government expert and lecturer in South Australia. The book contains, besides a great amount of statistics, a valuable treatise in regard to diseases, the folly of trying to cure a sick hen with drugs, etc.

I wish to say the book, if well studied, ought to be of great value to any one who is deeply interested in poultry. The price (bound in paper, with a good substantial strawboard cover), is only 50 cents; cloth, \$1.00. Address as above.

TEMPERANCE AND MISSIONARY WORK IN NEW MEXICO.

A few years ago a lady missionary from New Mexico gave us a talk at our evening prayer-meeting in regard to the great need of spreading the gospel, and of education and civilization. In the greater part of New Mexico, she says that those who visit only towns along railroads and the larger cities have no idea of the ignorance, destitution, and superstition existing among the great bulk of the inhabitants. Just one illustration:

She says they are in the habit, in many of the out-of-the-way places of having a kind of theatrical show to amuse the people. Before the United States put a stop to it, you may recall that they had bull-fights; and the gathering was not considered a success unless one or more men were *killed* in the fight. Well, these people have a fondness for plays representing scenes from the Bible; and in order to bring a great crowd they have the crucifixion complete, and a real live man is *crucified* on the cross; and for some reason or other our United States has not put a stop to it. Perhaps it is largely in out-of-the-way places, and intelligent people know little or nothing about it. Soon after this talk, while it was fresh in mind, I received the following letter in regard to the Work of the Anti-saloon League in New Mexico:

Mr. A. I. Root:—We are having campaigns on among the Spanish-speaking people all over the State, and they are in so many ways so helpless, not only financially but also helpless to know what to do and how to do it, and we comparatively few English-speaking people have to do the work among and for them to so large an extent, that, were it not for the sacredness of the high interests involved, I doubt whether I could continue to face all these difficulties. But we are not our own, and the cause is that of our great Master, and so we fight on. If Colorado votes dry this fall, we feel very hopeful of carrying New Mexico in January, especially if Arizona also should succeed in voting dry this fall, as both adjoining States have called State-wide elections on prohibition.

I am still receiving your journal, and always look it through, especially your religious department, which naturally interests me most. After perusal I reinsert in the wrapper, put on a stamp, and mail it to Miss Clara D. True, of Espanola, N. M., who keeps bees, and is also a good friend of our cause, and who might be interested in some of your supplies.

J. I. SEDER, State Superintendent.
Albuquerque, N. M., May 19.

I am hoping and praying, not only for the success of the temperance work in the out-of-the-way places belonging to the United States, but that our different denominations in their zeal for spreading the gospel will remember the urgent need, *right here* in our own country.

Convention Notices

A summer meeting of the New Jersey Beekeepers' Association, July 8, will be held at the apiary of Robert Spicer, Wharton, Morris Co., N. J., reached by D. L. & W. R. R., and C. of N. J. An interesting program is being prepared.

New Egypt, N. J., May 19. E. G. CARR, Sec.

IOWA SUMMER MEETINGS.

At Des Moines, July 15, a big day is planned at the Dustman apiary, which is convenient to the car line. The committee is planning a series of interesting demonstrations. The central location and splendid railroad facilities from all directions make Des Moines very easy of access.

At Mr. Pleasant, July 28, is to be held the fifth field meet of the season. The committee is already making plans for the program with C. P. Dadant, of Illinois, as one of the speakers. Beekeepers from Western Illinois and Northeast Missouri will find Mr. Pleasant easy to reach, and should plan to come.

On August 12, at Clarinda, the friends from Nebraska and Missouri will find a point easy of access, and the Strong apiary will be the place of meeting. Mr. Strong, the well-known queen-breeder, has been keeping bees for almost half a century, and will demonstrate his methods of queen-rearing. The program will be announced later.

For several years the beekeepers in the vicinity of Sioux City have held a tri-state meeting, the date of which this year is set for Aug. 20. Friends from South Dakota and Nebraska meet with Iowa beekeepers for an annual picnic at Riverside, and the committee in charge always plan an interesting time.

The meeting at Delmar, Iowa, will be held July 7 at the Coverdale farm. Mr. Coverdale has become famous as a grower of sweet clover, and is considered by many of the agricultural papers as authority on the subject. He will have experimental plots showing what sweet clover will do when handled scientifically. Mr. Coverdale will deliver an address, explaining what sweet clover will do for the farmer and stock-raiser. Any one contemplating sowing sweet clover can well afford to make a trip across the State to hear Mr. Coverdale and see his experimental plots as well as his large acreage.

Mr. C. P. Dadant, of Hamilton, Ill., is too well known to need an introduction. He will deliver an address that will be of much interest. Mr. Dadant has been left to choose his own subject. Being a very keen, well-educated man, you may rest assured he will have something to say. Every beekeeper of any consequence has heard of "Dadant." It is a household word. Who hasn't heard of "Dadant's foundation"? Every beekeeper who is within reasonable distance should not fail to hear Mr. Dadant. It will be time well spent.

Mr. Frank C. Pellet, Iowa's State Bee Inspector, will also speak on foul-brood conditions in Iowa, foul-brood laws, etc. Mr. Pellet is also president of our State association, and a live wire. He is also a lecturer of some note. Mr. Pellet isn't very large, but you will know that he is at the meeting all right. Don't forget the basket dinner. Other subjects will be well worth your time and money to attend. Let everybody come, whether a beekeeper or not, and let

every beekeeper in the northeast quarter boost for the Delmar meeting.

Center Junction, Iowa W. S. PANGBURN.

KIND WORDS.

A KIND WORD FOR "STARVING AMERICA," ETC.

I am no enthusiast over a new thing, and don't "go off half cocked;" but \$100 would not buy the knowledge I got out of "Starving America" if I could not replace it. It is an awful pity that a man capable of doing so much good as Dr. Wiley can should be turned down by the American people, or should be allowed to be driven out of office where he could do so much good. I am no socialist, but something should be done by the ordinary people to get what belongs to them.

C. A. STEVENS.

Montreal, Que., Can., Feb. 27.

A KIND WORD FROM TEXAS.

I am 72 years of age, and have been reading GLEANINGS about 50 years. Bees are doing well here this spring, and we expect a heavy honey crop. I have the dasheens. They are now up, and growing nicely. I enjoy Mr. Root's Homes, Intensive Gardening, and Poultry Department.

Huntsville, Texas, May 7.

E. T. JOSEY.

[Thanks for your kind words, my good friend; but as GLEANINGS has been published for only 42 years we shall have to take what you say as along the line of "coming events cast their shadows before." But perhaps you refer to my writings in the *American Bee Journal* for several years before our own journal was started.]



FINE YELLOW

GUARANTEED ITALIAN QUEENS

only \$1; 3-fr. nuclei with fine queen, \$2.75; full stand with fine yellow queen, \$5.50.

J. L. FAJEN, STOVER, . MISSOURI

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Bees more beautiful, more generous, more industrious; the best honey-gatherers. PRIZES: VI Swiss Agricultural Exposition, Bern, 1895; Swiss National Exposition, Geneva, 1896; Beekeeping Exhibition, Liege, Belgium, 1896; Beekeeping Exhibition, Frankfurt, O. M. (Germany), 1907; Convention of the German, Austrian, and Hungarian Beekeepers, August, 1907; Universal Exposition, St. Louis, Mo., U. S. A., 1904; the HIGHEST AWARD. Extra breeding queens: \$3.00; Selected, \$2.00; Fertilized, \$1.50; lower prices per dozen or for more queens. Safe arrival guaranteed. Write. ANTHONY BIAGGI, P-DEVILLA, near Bellinzona, ITALY. Please in writing mention "Gleanings in Bee Culture."

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PRODUCE WORKERS

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They have won a world-wide reputation for honey gathering, hardiness, gentleness, etc. Untested queens, \$1.00; six, \$5.00; 12, \$9.00. Select untested, \$1.25; six, \$6.00; 12, \$11.00. Safe arrival and satisfaction guaranteed. Circular free.

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Route 1, Morgan, Ky.

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The only cyclopedia on bees, 712 pages, fully illustrated. Every phase of the subject fully treated by experts. Price \$2.00 postpaid; money refunded if unsatisfactory.

THE A. I. ROOT CO., Medina, Ohio.

Honey - Cans

We have made especial efforts this season to supply our patrons with cans and cases of the finest quality, and we have now in our warehouse a complete stock ready for immediate shipment to you.

There is much satisfaction in knowing that there is a dependable source of supply so near to all Texas Beekeepers, and others in the great Southwest. Experience has taught us to anticipate properly the needs of our patrons, and we have as yet failed to fall down at a critical time. Sometimes we feel that it is not wise for Beekeepers to trust entirely to the supply house for eleventh-hour assistance, but we concentrate our energies, nevertheless, on complete preparation, and when you are ready we are. Write us for prices.

Weed's New Process Comb Foundation

We have made extensive improvements in our comb-foundation factory this season at a great expense, and are now operating day and night under the supervision of a man direct from The A. I. Root Company, who has had many years of experience in the manufacture of this product. When placing your order with us you are assured of receiving Comb Foundation of unexcelled quality.

Sell Us Your Honey and Beeswax

We desire as usual to buy all the first-class white honey we can obtain. We are now paying for bulk comb honey of the above grade, properly put up f. o. b. the beekeeper's railroad shipping point:

2 Sixties	9c per lb.	10 Twelves	9½c per lb.
10 Sixes	10c per lb.	20 Threes	10½c per lb.

Prices subject to change without notice.

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Toepperwein & Mayfield

Nolan and Cherry Sts.

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New 64-page Catalog

Our new 1914 catalog contains double the pages of former editions and requires extra postage. It is filled from cover to cover with complete lists of goods in every line to meet every requirement of beekeepers. If you haven't received a copy when you read this, be sure to ask for one. It will save you money.

New Features for 1914

Few radical changes have been made this season. It should be noted, however, that we will send out with regular hives, unless otherwise ordered, the metal telescopic or R cover with super cover underneath. The side rail for the bottom-board will be extra length so as to overcome the difficulty experienced by some last season. Improvements have been made in extractors. We shall carry a very heavy stock so that orders may be filled with our usual promptness. Write us your needs.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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A. I. ROOT

Editor Home Dept.

H. H. ROOT

Ass't Editor

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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DENVER.—We have no more old stock of comb honey to offer, and are selling extracted honey in a jobbing way at the following prices: White extracted, 8; light amber, 7. We pay 32 cts. per pound cash and 34 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
Denver, June 17. FRANK RAUCHFUSS, Mgr.

LIVERPOOL.—The market for Chilian honey is slow; 25 barrels arrived per SS. Ville du Havre. Various piles sold at \$5.04 per cwt., ex quay, rather than store stocks being heavy. The Chilian beeswax market is quiet; 10 sacks have been sold at \$36.42 to \$42.48 per ton. Fifty-five packages have arrived per SS. Ville du Havre and Panama.

Liverpool, June 10. TAYLOR & CO.

INDIANAPOLIS.—Fancy white comb is being offered here at 16 to 17 cents per pound; amber comb, 14 to 15; white-clover extracted, 9 to 10 in 5-gallon cans. Much comb honey is being held here; but at this writing there is very little demand. Extracted is in fair demand. Producers are being paid 32 cents cash for beeswax, or 34 in trade.

Indianapolis, June 18. WALTER S. POWDER.

KANSAS CITY.—Our market is still bare of comb honey, except what is left in retailers' hands. Plenty of extracted honey, but the weather has been so warm there has been very little demand. We think new honey will sell about as follows: No. 1 white comb, 24-section cases, \$3.25 to \$3.50; No. 2 ditto, \$2.75 to \$3.00; No. 1 amber ditto, \$3.25; No. 2 amber ditto, \$2.75 to \$3.00; extracted white, per lb., 7½ to 8; amber, 7 to 7½; No. 1 beeswax, 30; No. 2, 25.

C. C. CLEMONS PRODUCE CO.
Kansas City, June 15.

ZANESVILLE.—The rather unsatisfactory industrial conditions are evidently affecting the honey market, as the demand is abnormally slack. Prices remain about as previously quoted. Best grades of white-clover comb sell to the retail grocery trade at 18 to 19, jobbing prices being about 2 cts. lower. Western honey, or clover honey with traces of granulation, would be subject to some concession from these prices. Extracted in 60-lb. cans is quoted: Clover, 9 to 10; orange, 10 to 11; light amber, 7 to 8. Producers receive for beeswax 32 to 33 cash, 34 to 35 in trade.

Zanesville, June 19. E. W. PEIRCE.

ST. LOUIS.—Our honey market is very quiet and narrow, dealers buying just enough to have some on hand. Some Southern new extracted honey has arrived in this market, with quotations merely nominal. We quote Southern extracted strained bright-amber honey, in barrels, 5½ to 6½; in cans, 6 to 7; dark, ½ to 1 ct. per lb. less. Fancy clover in combs, 14 to 15; light amber, 12 to 14; broken and leaky, 7 to 8; by the case, fancy clover, \$3.00 to \$3.25; light amber, \$2.25 to \$2.50; dark and inferior, \$2.00. Beeswax scarce, and wanted; quoted, prime, 35½ cts. per lb.; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, June 17.

NEW YORK.—There is some demand for new-crop white comb honey, which is selling at from 14 to 16, according to quality. Off grades are not wanted. We carried over several lots from last year, for which it seems almost impossible to find buyers at any reasonable price. As to extracted, the market is decidedly dull; new crop is beginning to arrive from the South, and off grades find slow sale at from 55 to 60 cts. per gallon, while fancy grades are in better demand, and are selling at around 75 to 85 cts. per gallon, while fancy grades are in better demand, and are selling at around 75 to 85 cts. per gallon, according to quality. West Indian, especially Porto Rican, is arriving right along, and finds only small sale at 55 to 57 cts. per gallon. Beeswax is steady and firm at from 34 to 36, according to quality.

New York, June 17. HILDRETH & SEGELKEN.

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Please in writing mention "Gleanings in Bee Culture."

INCREASE YOUR HONEY CROP!

by introducing some of Leininger's strain of Italians. Have been a breeder for 25 years. No better bees in America. Untested, 1, \$1.00; 6, \$5.00. Tested, 1, \$1.25; 6, \$6.00. Breeders, \$10 each. Every queen guaranteed.

FRED LEININGER & SON, Delphos, Ohio

Beekeepers, Attention

If you have any extracted or comb honey to offer send us samples of quality, state quantities and how packed. We pay the highest market price for same. We are paying 34 cts. cash for nice, clean, bright yellow beeswax.

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BEE SMOKER
Patented

The Bingham Bee-smoker

nearly forty years on the market, and the standard in this and many foreign countries. The all-important tool of the most extensive honey-producers of the world. Such men as Mr. France and the Dadants use the Bingham. By co-operation Mr. Townsend uses six Smoke Engines. For sale at your dealers' or direct. Postage extra.

Smoke Engine, 4-inch stove; wt. each, 1 1/4 lb.	\$1.25
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Two largest sizes with hinged cover.	

Woodman Style Veils

Our veils contain 1 1/2 yards of the best material for the purpose—imported French tulle veiling. They are made

with a rubber cord in the top to fit around the hat, and the lower edge has the cord arrangement shown above, the two ends going around behind the body, and back in front to tie. This arrangement holds the veil down on the shoulders snugly, away from the neck, and permits the wearer to handle bees in his shirt sleeves with no chance of bees crawling up and under veil. With a hat of fair size brim to carry veil away from the face you are as secure from stings, movements as free and unrestricted, and as cool and comfortable as you would be at a summer resort.

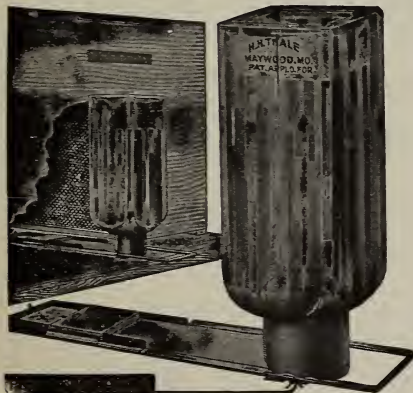
All cotton, each, postpaid,	\$.50
Cotton with silk face, each, postpaid,	.60
Bee-hat, flexible rim, fits any head, postpaid,	.35
Extra silk face piece, postpaid,	.10
Long-sleeve bee-gloves	.35

Such men as R. F. Holtermann, J. E. Crane & Son, N. E. France, and many others all over the U. S. A., order a supply of these veils each season, year after year.



A. G. Woodman Company, Grand Rapids, Mich.

THALE'S REGULATIVE VACUUM BEE-FEEDER



IS THE BEST BY TEST. Arrangements have been made with the leading dealers and bee-supply manufacturers to catalog and sell this feeder for 1915.

Watertown, Wis., May 7, 1914.

Mr. H. H. Thale, Maywood, Mo.

Dear Sir:—Referring to your bee-feeder and the test Mr. Kenneth Hawkins made for us, we are herewith enclosing a copy of his report just received, and which will undoubtedly be of interest to you. We have now made note to list this feeder in our 1915 bee-supply catalog, and will place our order for feeders in due time.

Yours truly, G. B. LEWIS CO.

Plainfield, Ill., May 4, 1914.

G. B. Lewis Co., Watertown, Wis.

Dear Sirs:—In referring to comparative tests of bee-feeders, in my opinion there is no better feeder for stimulative feeding or for the queen-breeder than Thale's Regulative Vacuum Bee-feeder. It is better than the Boardman in that the bees can always take the syrup, even in coldest weather. They took feed here with the temperature at 22 degrees at night. There is no comparison between the Thale and Boardman or division-board feeder, owing to the ease with which one may control the flow. It is better than the Alexander for the same reason, and that it doesn't make a nuisance fastened to the hive. The Miller feeder will always be the best fall feeder for handling large lots of syrup, I believe; but the Thale may be fed so as to empty in 12 hours. I have found, and that threatens to outgrow the Miller, owing to the ease of operation and lack of bothersome equipment.

The value of stimulative feeding is already known; and within 24 hours after feeding with the Thale I had eggs in every cell that the bees could cover here, with the temperature below freezing—this with pollen from the maples. All together I recommend the Thale feeder as being the best feeder I have ever used for stimulative feeding.

KENNETH HAWKINS, Breeder of Quality Hill Queens.

Beekeepers can buy these feeders from G. B. Lewis Co., Watertown, Wis., and their thirty distributing houses: Minnesota Bee Supply Co., Minneapolis, Minn.; Leahy Mfg. Co., Higginsville, Mo.; Earl M. Nichols, Lyonsville, Mass.; B. H. Masters, Edison, Ohio, and Harry W. Martin, New Holland, Pa. I want every dealer and every manufacturer of bee-supplies to handle these feeders next season. Write for jobber's prices. Buy these feeders from your nearest dealer in 1915.

H. H. THALE, MANUFACTURER

MAYWOOD, MISSOURI

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St. Petersburg, Russia
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For catalog and inquiries
write at once to : : :

Emile Bondonneau

Root's General Agent for Eastern
Europe and Colonies

154 Ave. Emile Zola, Paris 15 (France)

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That is a well-known old-time saying; but it does not apply to you, because YOU ARE NOT A CAT. It is safe for you, and for your wife and your children, to want to know what is to be found in the woods and the fields around you, in the swamps and meadows, the ponds and ditches. Do not hesitate to indulge in the Joy of CURIOSITY. You are not a cat. You can satisfy the desire to know by reading

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It is ten cents a copy;
one dollar a year.

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Notwithstanding the heaviest demand for supplies ever experienced here, we believe that, with very few exceptions, our customers have been served in a prompt and satisfactory manner.

As it is not always possible to anticipate one's exact requirements, something—hives, supers, sections, or foundation—may be needed at almost the last minute. These rush orders we can now fill with the utmost despatch. Then there are the seasonable goods—bee-escapes, shipping-cases, extractors, tin cans, glass jars, labels, etc., any of which we can furnish on short notice. It will be to your interest to look carefully through our illustrated catalog, which will be mailed you on request.

FLOODED STOCK

There still remain a few odds and ends of flood-damaged goods. As long as they last, any of the following will be sold at just one-half the catalog price of new goods. Cash must accompany remittance, and right is reserved to make any reasonable substitution.

Plain, slotted, and Danz, section holders,
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Carlin foundation-cutters, tin,
Porter bee-escapes, tin, and wire,
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Manum swarm-catchers and poles.

E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.

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will be the man who runs

OUT-APIARIES

BY THE MOST APPROVED PLANS

Learn How by Reading

Management of Out-APIaries

A 72-page book by the well-known writer
G. M. DOOLITTLE
of New York

The best work on running a series of yards that we are able to offer. Twelve chapters, seventy-two pages. Price 50 cts. per copy postpaid. Get a copy. now of the publishers.

The A. I. Root Company
Medina, Ohio

Keep Well by Using Well "ROOT'S" GOODS

The Very Foundation of Modern Beekeeping

Better let us send you a catalog of Root's, that you may be able to select the kind that will enable you to have a healthy and prosperous summer.

The A. I. Root Co., Syracuse, N. Y.
1631 West Genesee Street

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**We Expect to Use
SEVENTY TONS**

of beeswax during the next **SIX MONTHS**, and we have on hand less than twenty tons. We offer for good average wax, delivered at Medina, 33 cts. **CASH**, 35 cts. **TRADE**. If you have any good wax to sell write to us or ship it by freight. Send us shipping receipt, giving us gross weight also net weight shipped. Be sure to mark your shipment so we can identify it when received.

Beeswax Worked into Foundation

If you want your wax worked into foundation we are prepared to do this for you at prices equal to those made by other standard manufacturers. Write for price if interested.

The A. I. Root Co., Medina, Ohio

"If goods are wanted quick, send to Pouder."

ESTABLISHED 1889

When You Think of Bee Supplies, Think of Pouder

A very complete stock of goods on hand, and new arrivals from factory with an occasional carload to keep my stock complete. Shipments are being made every day, and the number of early orders received is very encouraging. Numerous orders reached me during our February and March blizzards, which indicates that the beekeepers have confidence in the coming season.

My new catalogs have been distributed. If any of my friends have failed to receive theirs, please write for another. If more convenient you may make up your order from the Root Catalog---our prices being identical. For very large orders at one shipment, write for an estimate, and I can save you something by following the factory schedule.

I shall be glad to hear from my friends as to how bees are wintering and springing, and as to prospects for clover.

Walter S. Pouder

873 Mass. Ave., Indianapolis, Indiana

Indicate on a postal which of the catalogs named below you are interested in ————— They are Yours for the Asking.

CATALOG A.—BEE-SUPPLIES, listing every thing a beekeeper needs for his bees. Our goods are all "Root Quality," and we can save you time and freight expense in getting them. Let us furnish you with an estimate on your needs for the season.

CATALOG B.—BEES AND QUEENS. Mr. M. H. Hunt has charge of our queen-rearing apiary. We specialize in choice Italian queens, three-banded and golden, and bees by the pound. Orders filled in rotation as received.

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Every Thing in Supplies

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YOU will need bees or supplies during the coming season. We can save you money. Our catalog, which is free, will show you. Italian queens, \$1.10.

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Aplares, Glen Cove, L. I.

IF IT'S FOR BEES WE HAVE IT

A full line of supplies always in stock. Let me know your wants. Send for catalog.

H. H. JEPSON

182 Friend Street

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Beekeepers' Supplies

Our 1914 64-page catalog ready to mail you free. . . Can make prompt shipment of regular-stock goods, as we have a good supply of The A. I. Root Co.'s goods on hand. The rush season will soon be on hand. Our freight facilities are good. Small packages we can rush through by parcel post. Express rates are much lower now also. Let us quote you. Let us hear from you. Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
High Hill, Montgomery Co., Mo.

"Griggs Saves You Freight"

TOLEDO

"Griggs Saves You Freight"

With four carloads of new goods on hand, we are now better prepared for the rush than ever. But don't wait to be in the RUSH. Send your order in now, and have the goods on hand, ready for use.

New Illustrated Catalog of 60 Pages

We want one in every beekeeper's hands. Send postal for one to-day. It is free.

White-clover Extracted Honey Wanted, also Beeswax

in exchange for supplies. It will be to your interest to get in touch and keep in touch with us.

S. J. GRIGGS & CO.,

26 NORTH ERIE STREET,
"Griggs is Always on the Job"

TOLEDO, OHIO

Be Careful of Your Honey Crop

Now that you are through with all the anxious work preliminary to gathering in the honey

**Look to it that your crop goes on the market right!
See that your honey is in Lewis sections.**

The sections that are scientifically right—made out of nice bright Wisconsin basswood.
The manufacture of LEWIS SECTIONS is watched over by experts.
LEWIS SECTIONS fold perfectly.

Lewis Shipping-cases are Superb

Do not cheapen your product by inferior cases. You can afford the best.
Remember, your shipping-cases are the show-windows for the sale of your goods.
Your honey will bring more money if well displayed.

Insist on the Lewis Make

G. B. LEWIS CO., Sole . . . **Watertown, Wis.**
Manufacturers
Thirty Distributing Houses. Send for the Name of the one nearest you.

Send for Our Prices on

BEESWAX

We are paying higher prices than ever before at this season. WHY? Because of the tremendous demand for

Dadant's Foundation

Write at once. . . We will quote prices F. O. B. here or F. O. B. your station.

DADANT & SONS
HAMILTON, ILLINOIS.

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

H. H. ROOT, Assistant Editor
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NO. 13

EDITORIALS

THE reader's attention is directed particularly to the editorial on the net-weight law as it relates to comb honey. See page 487 of this issue.

The Golden or so-called Five-banded Bees

It is refreshing to note that those who advertise golden Italians are more conservative in their advertisements. The time was when five-banders were advertised, but only three and four banders were sent out. The beekeeping fraternity has learned that a strictly five-banded queen is a rare bird. It was folly to advertise them when they could not be furnished.

Our Front Cover Design

THIS shows a small section of our Apalachicola apiary, with one of the workshops in the background, some three or four weeks before the first car shipment was made. In the mean time these two-story colonies were increased to three stories, and in some instances up to four; then when the carload shipments began to move, the colonies were split up into one-story sections, each one being supplied with a queen.

The view shows a convenient arrangement for hives and the nice board walk that runs down in between; but it does not show very clearly that these walks and hives were some five or six feet above the ground, as heretofore explained, in order to escape high water.

Postponement of the Date when the New Ruling Regarding the Guarantee Clause on Pure-food Packages Shall Become Effective

WE have just received notice from the United States Department of Agriculture that the ruling with regard to the elimination of the guarantee clause on food packages will be effective May 1, 1916, instead of May 1, 1915, as first announced. It would

appear that the manufacturers of food products found that it would be practically impossible to dispose of their goods by May 1, 1915, and asked for a postponement of one year more. Full particulars regarding this are given in our issue for June 1, page 401. It should be clearly understood, however, that this has nothing to do with the operation of the net-weight law given on page 487. There is as much or more reason why there should be a postponement on this.

Limitations of Parcel Post

SOME of the dealers in beekeepers' supplies have received numerous complaints from their customers because their goods were sent by express rather than by parcel post. The fact is, all should remember that a limit of 50 lbs. is for local delivery or no further than the 150-mile zone; and 20 lbs. is the limit for all distances of 300 miles and over. Again, it should be understood that many things can be sent cheaper by express than by mail. If you will leave the matter with your dealer he will select parcel post, express, or freight according to conditions. It sometimes happens that the cost on express packages will be so great that he will send by freight, and of course that means delay.

This has been an extraordinary year for supplies. The call for goods to go by parcel post has been enormous; and while no doubt that means of delivery has been a great boon to the public at large, there are many times when express will be cheaper.

Methods of Imbedding Wires in Foundation

YEARS ago A. I. Root imbedded wires with a hot point drawn along each wire, with just enough pressure to sink the wire half-way through the foundation. Since reading Arthur C. Miller's article, p. 495, we have been trying the plan again, comparing it to the plan illustrated on page

801, Nov. 15, for last year. The hot iron really does very nice work; but on account of the greater danger of missing the wire or running off and melting a hole in the foundation, and also because of the necessity for having all conditions just about perfect for good results, we still prefer the wide-toothed imbedding-wheel. This tool, as explained, is altogether different from the old tracing-wheel imbedder. It may be used hot or cold; but when hot it leaves a little bridge of melted wax across the wire at each point where a tooth strikes, which bridge is about $\frac{1}{4}$ inch long, or as long as the tooth is wide. The wire is not heated, and the imbedding is done by pressure in the usual way, although the tiny "bridge" of surplus wax from each tooth as it strikes holds it securely so that it can not move.

We are not particularly in love with the groove-and-wedge plan of fastening the foundation to the top-bar. However, since we happened to be fitting up a lot of frames we took occasion to time the operation. Time after time, we picked up a frame, dropped the foundation in the groove, put the wedge in the other groove, and sank it down below the surface, and imbedded the wires with the hot gear imbedder all in 30 seconds. We cannot average two frames a minute, however, and we judge that Mr. Miller does not intend to convey the idea that that is *his* average speed.

Field-day Meet at Medina, July 9, 10

In addition to what was said in our last issue concerning the field day at Medina July 9, 10, under the auspices of the Ohio State Beekeepers' Association, we may add that plans are well under way for a good meet here. President Matheny sends the following provisional program for the evening of the 9th:

Report of Chief Inspector of Apiaries. N. E. Shaw
Beekeeping in the early days. A. I. Root
The Inspector's point of view. E. R. King
Fads and Fancies. E. R. Root
The honey crop. Fred Leininger

During the afternoon of the 9th and the forenoon and afternoon of the 10th, there will be field-day demonstrations. On the 10th we shall make a demonstration with power extracting machinery, all of the latest pattern. Ample facilities will be afforded seeing each step in the whole process.

Our men who devote their time to queen-rearing will give demonstrations in grafting cells, and, in general, the entire process of rearing queens from start to finish; and in order that all may see, we will have different demonstrators in the field.

We regret that it will be impossible for either Dr. Miller or Mr. Doolittle to be here.

Sickness in Mr. Doolittle's family, and the extreme age (83) of Dr. Miller, render it practically impossible for either of them to be with us; but fortunately one of the Dadants of Dadant & Sons will be here.

A. I. Root will relate some of his early experiences in beekeeping, about his ups and downs, of his acquaintance with Rev. L. L. Langstroth and other prominent beekeepers of the early days.

LODGING AND BOARD.

As Medina is not a large town, our hotels and restaurants will be taxed to their utmost limits to take care of the crowd. It is absolutely necessary, in order to secure lodging and meals, that those who expect to attend send in their names in order to secure accommodations. We may have to put up cots in our warehouse; and the probabilities are we shall have to get some church organization to feed the overflow who can not be accommodated at the hotels and restaurants. Meals at the American House will be 50 cents; at restaurants, 35 cents; and the ladies of the church will probably charge the same amount. The probabilities are that any ladies who come can be accommodated in our homes on the nights of the 9th and 10th.

Unless each one of you who expects to attend this field meet sends in his name in advance he may not be able to secure lodgings and meals. If you are not sure you can come, but yet expect to, send in your name anyhow. All such letters should be sent to E. R. Root, at Medina, who is looking after accommodations.

1914 Honey Prospects; Clover Crop Not Promising; Prices

THE prospects for a clover crop are not promising. The excessively hot and dry weather during the fore part of June, followed by cold weather and no rain in many localities put a decided check on clover. In some cases it seemed to be parched out and gone to seed; but recent rains (which have been general over the north-central portions of the United States) may change the situation where they were not too late.

To be more specific, the clover crop is not going to be a failure by any means. While it will probably be just that in some localities, there will be from fair to good yields in others; the reports from Michigan are from good to bad; but most of the reports we have read thus far indicate either a short crop or an entire failure. Two of the largest producers of Ontario expect a short crop.

It is too early yet, however, to get definite statements, as the reports up to date are few and scattering; but in our own locality it looks now as if we are to get no clover—hardly enough to fill up the hives; but we have just had (June 23) some very heavy soaking rains, and we hope the bees will get enough to fill their combs. But even at best we do not expect to get an extracting from clover.

Basswood never looked better; the prospect of honey from that source seems to be good all over the country where basswood grows. One or two fear that the seventeen-year locusts will do some damage; but this damage will probably be only minor. But, unfortunately, the basswoods have been pretty well cut off; and even if they do give their nectar splendidly, the aggregate will not be large.

In spite of discouraging prospects we do not know when we have had a year when there has been such a heavy demand for supplies. The factories have been running overtime. There must be some prospects of a honey crop or there would not be such a call for goods. The next issue will tell the story.

The prospects for alfalfa honey, both comb and extracted, are very good except in the immediately vicinity of Denver, Col., where the bees appear to have been killed by smelter smoke. Reports regarding the yield from mountain sage are somewhat hazy; but it is our opinion there will be considerable mountain sage this year, and some orange blossom. Texas appears to have had a very fair crop; but as it consumes its own product largely, it will not have very much influence on the market.

PRICES FOR 1914.

A couple of weeks ago, producers and buyers were undecided where prices would go. The large amount of honey left over from last year created a feeling of uncertainty in the face of a promising yield from clover in the Eastern States; but as the yield from that source will probably be light—nothing like what it was last year—it would appear that prices ought to be firm, with a possible tendency upward. At all events, we would not advise those who have large amounts of last year's extracted to unload at low prices.

In the mean time we solicit reports from honey-buyers and producers generally; but be sure to make your reports brief.

Later.—Telegrams since the foregoing was written are as follows:

Clover prospects in this locality indicate a big crop. Weather is cold and rainy.
St. Paul, Minn., June 23. THE A. I. Root Co.

Late Rains Starting the Honey-flow Again

Later.—Since writing the foregoing it is apparent that the heavy soaking rains have started up the clovers again. Before these rains fell, and for a day or two afterward there was nothing doing in our yards, and the bees got to robbing; but we are now (June 24) having hot muggy weather, and the ground, thoroughly soaked, is pushing up the belated clovers that are yielding nectar. The boys are now rushing on the supers.

Reports from over the country show that the rains are quite general in the clover belt, and these have boosted the prospects for clover. If these same rains had come a week or ten days earlier, there would have been a big crop of clover, without doubt. As it is, there will probably be from a light to a fair crop. In any case the yield can hardly be as heavy as last year.

We shall probably secure enough honey to make a demonstration with power extracting machinery on the field-day meet at Medina, July 9 and 10.

The Net-weight Law so far as it Applies to Comb Honey

A FLOOD of inquiries have been coming in, asking for some more specific information than was given on page 385 of our issue for June 15. We were not able at the time to cover all the points. We are now informed that the net weight on a section of honey means the net weight of the contents in the section exclusive of the wood part—that is to say, if a box of comb honey, including the wood, weighs 13½ ounces we must subtract one ounce and mark the section 12½ ounces net weight, as the wood part of the section weighs approximately one ounce. If the Government insists on this ruling it will mean, other things being equal, that producers and honey merchants will have to charge more, and that a large number of others will be innocent violators of the law.

The actual tendency of the net-weight law will be to reduce prices, as it may be difficult to increase the price on a 12½-ounce section to a 13½-ounce price.

As the net-weight law is construed to mean that only the actual weight of the honey in the section is to be considered, then, naturally enough, the glass in glassed sections cannot be weighed in with the honey. Heretofore the section itself and two sheets of glass have been included and sold at the same price as the honey itself. There is nothing morally wrong in this, because if the fancy trade requires honey in that form

—something that will stand rough usage, and which will be free from the depredations of robber bees, flies, ants, and other insects, then such trade should pay for the extra cost of so protecting the honey. But apparently, under the new law, only the net weight of the honey exclusive of the glass and the wood can be considered. As the glass is more variable in weight—more so than the section itself—it will be a little difficult to get at the actual net weight of honey already glassed. Producers who have a trade in glassed comb honey can sell it, but they must weigh up the sections *before glassing*, deduct one ounce for the wood, and mark the net weight on the section, whatever that is—10 or 15 ounces, and then put on the glass; but they can charge only for the honey itself. The practical operation of the law will be to exclude glassed honey from the market, in our opinion, unless the government reverses its decision on the net-weight proposition as it relates to comb honey.

It will be well to bear in mind that the net-weight law goes into effect Sept. 3 of this year. The law was passed March 3, 1913, and gave the producer and dealer eighteen months in which to dispose of all old stock; but the decision to exclude the weight of the section has only just been announced (May 28). As many beekeepers were honestly of the opinion that they could include the weight of the section they sold, a large amount of honey on the market will necessarily be misbranded. Just what the Government will do in cases of this kind is hard to say. This may work a more severe hardship on the large producers and dealers than on the smaller ones.

As soon as we can get a more definite statement we will place the same before our readers. But Mr. Frank Rauchfuss, of the Colorado Honey-producers' Association, wrote to Washington and received a night-letter telegram as follows:

Regarding branding honey in frames or cartons, weight of actual contents should be marked upon frames of individual units, or upon outside of cartons when used. Regulations, paragraph H, minimum weight blank ounces, is suggested as convenient. Form letter follows.

C. L. ALSBERG.

From the letter following, Mr. Alsberg makes this statement:

"We note the custom of your association, and in that connection your attention is particularly called to paragraph H as suggesting a convenient method of branding which will meet your conditions. The statement of weight, however, should be that of the contents, *exclusive of the wooden frame.*"

This leaves no room for doubt; and it is apparent that dealers and producers alike will have to modify their entire scheme of selling comb honey.

In this connection it is apparent that the net weight of a case of comb honey must be the added-up weight of every section in the case less as many ounces as there are sections in the case. All together it is apparent that the price of comb honey, if sold at the figures of a year ago, other things being equal, should be advanced in order to cover this shrinkage. If comb honey is much scarcer than last year, another advance will have to be made. Of course that advance would have nothing to do with the net-weight law.

Another question has been asked; and that is, whether the ordinary 60-lb. square cans, kegs, or barrels shall be marked with their net weight. As we understand it, the new net-weight law applies only to small packages—packages that go to the consumer, and not to the large containers that are sold in a wholesale or jobbing way to dealers. Honey, however, in square cans varies somewhat in weight. The variation as we find it runs all the way from 56 to 61 lbs. Then, again, there will be a shrinkage on account of evaporation. Some of the honey, perhaps, was extracted a little too thin. The dealer fears that it will sour on his hands, and will remove the caps of the square cans until the honey evaporates down a little.

To be on the safe side, it will be better, in our opinion, to mark every can, keg, or barrel, with the exact net weight of the honey. The ordinary square cans will have an actual weight of about 2½ lbs. But kegs and barrels will vary so much that each barrel and keg will have to be weighed separately.

We have taken this matter up with Dr. E. F. Phillips, of the Bureau of Entomology, suggesting that he explain to the committee of the pure-food department some of the difficulties that producers are going to meet under the operations of this new law providing that only the wax and honey are considered, and providing that it goes into effect in September of this year.

In conclusion, we should say that we enter no complaint at the general intent of the law, which we believe to be thoroughly good. All we ask is that the Government, in view of its decision of May 28, give beekeepers' associations and dealers an opportunity to dispose of their old stock before the law becomes effective. If the action of the law could be deferred until September, 1915, instead of September of this year it would work no hardship on any one. Of course it will occasion some inconvenience; but in the end we shall all be able to readjust ourselves.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.

HALF-INCH bottom-starters are mentioned, p. 327. As the bottom-starter is my baby, I'm anxious it should have the best chance, and would advise against anything less than $\frac{3}{8}$, no matter what the size of the upper starter. The half-inch starter is harder to put in, and the bees are more inclined to tear it down if a dearth occurs.

"THE wave-like motion of the intestines, says Dr. Lorand, is primarily mechanical, and peristalsis can not continue unless there is some bulk of food on which it can take effect. Hence follows the singular result that if we eat only the food that we ought to eat, that solely essential to nutrition, we should be worse off than if we ate a great deal of material that has no nutritive qualities whatever." This, from a medical journal, is commended to those who are worried about eating comb honey because wax is indigestible. Fact is, if we would be well we must eat a lot of indigestible food, and wax works wonderfully well. [The story is told of a ship captain who ran out of hay for horses on his boat; but he had plenty of oats. But in spite of this concentrated food the horses kept going down. He then instructed his ship carpenters to take their planes and plane up some of the plank he had. The shavings were then mixed with the oats, when the horses began to build up. Planed shavings are indigestible, but in this case they accomplished the object sought.—Ed.]

A. I. ROOT, p. 477, you say there are 12 kinds of Presbyterians. Yes, nearly as bad as the "57 varieties" of Congregationalists. But then, Congregationalists have no synods and presbyteries to hold them level, and so there can be almost any variety under the same name. But please don't hold me responsible for all the fool things done by Presbyterians. I'm doing my little best to get them all together. But I don't believe in waiting for the 12 kinds of Presbyterians to get together before trying to have a bigger uniting. I don't believe there's any more excuse for Presbyterians and Congregationalists to keep separate than there is for the different Presbyterians. In Canada there's a movement on foot that I hope may soon end in uniting Congregationalists, Methodists, and Presbyterians. God speed the day when we'll "all be one."

P. S.—My dasheens are up.

[The time will soon come when we shall not have so many denominations. A lot of weak colonies will not begin to do as much effective work as the same numerical

strength of bees combined into a few good colonies. The same principle holds true in regard to churches. Why in the world church denominations cannot get together, especially in our rural communities, we can not understand. It is a travesty on the Protestant church at large. There are hundreds of rural communities that have little struggling churches which, if combined into one, would make a power for good.—Ed.]

FIRST bloom was seen on white clover May 27, and we began putting on supers. The rule is that the flow begins ten days after first bloom appears. But this year the bloom increased so rapidly, and was so immense in quantity, that we thought the ten days might be shortened. When the tenth day came, June 6, and not a thing doing at the hives, we began to make ready to face another year when white clover doesn't give down. June 6 it rained in the forenoon; but as soon as it cleared at noon and before it was fairly dried off, the nectar began to come in a flood, and in the ten days since then the flow has kept up whenever it was not raining. The cold has not seemed to make much difference, for it has been pretty cold. While I'm now writing this, at 11 A. M., June 16, it's 63 degrees outdoors, and—just wait a minute . . . Just been down to the apiary where Miss Wilson is at work, and I said to her, "Well, how is it?" "Not so very well," she replied ruefully. "It's so cold that they're fearfully cross. It doesn't seem they could be doing any thing when it's so cold, but they have. I've been over sixteen colonies, and I've put on ten fresh supers, and it's only six days since they were given all the supers they needed. But, aren't they cross? Merely!" (It's cruelty to animals to have any one work at bees at such a time, and I don't know that it ever happened exactly the same before.) An unusual combination of circumstances seemed to make it imperative that, for several days to come, the bees should be left to themselves. I said, "No need to do any thing to-day—too cold. Instead of doing that row before it's time, it can go a little over time." But with her usual persistence Miss Wilson said, "We'll take no chances; those colonies will be done to-day." And done they were, or at least they're being done. With the exception of hindrance from rain, the season seems as good as last year, *so far*. How long it will continue is another story. [We are glad that you have prospects of honey. We have none around here unless it comes from basswood.—Ed.]

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.

EXTRACTED HONEY AND THE BUSINESS BEE-KEEPER.

For the business beekeeper who is a salesman, there is no doubt that extracted-honey production is the best as a money-maker. The expense for supplies is very much less, and the money received for extracted honey will equal comb-honey prices if it is put up in glass and tin packages and sold under a trade name, as are other fancy food products. The average beekeeper does not have time to look after the sales side as it should be, but there are some beemen who are proving themselves capable of handling both.

* * *

SHALL APICULTURAL EDUCATION BE ENCOURAGED?

Mr. Hershiser writes a very interesting article on this subject, page 331, May 1. I say yes, if scientific marketing and distribution is made of equal importance with the production of honey in the course. Those who now are leaders in propaganda for apicultural education are not placing emphasis on developing and extending same methods of distribution. They believe, or at least they act as if the proper procedure is to encourage more production, and thereby save some of the nectar going to waste, and then let the beemen hustle to get rid of the crop in a hit-or-miss manner. Science in production and demoralization in distribution! Let the beemen do their own organizing; we will teach new comers in the apicultural ranks how to compete with them in producing honey; then they can all get into the grand squabble in selling their honey. That is just what we had last year in the West, and it was a grand squabble, I can assure you. Some of our brothers have a lot of honey to carry over because they got caught at the wrong time or were not willing to cut the price low enough. I know some men who have had to hold extracted honey for three years before selling it, and borrowing money all the time to live on. Let us get busy with a little apicultural business education lest the new beekeepers be forced out by failure to make the business go.

I think it is not the right course to limit education, for to do so is useless, any way. The American people are too much in favor of more and more of it. But let us make it broader than we have so far thought possible. Those who have talked limiting education and production are taking hold of the tail instead of the horns of this proposition.

The honey industry is not anywhere near the danger of overproduction that fruit-growers face. Mr. Hershiser is wrong when he says that the educational forces have not discouraged further extension of the fruit industry. The Extension Department of the Colorado Agricultural College has been doing that very thing. On the western slope of Colorado the people were specializing on fruit too strongly, and the Extension Department has been trying to bring in more diversified farming operations, pointing out that we could not profitably compete with eastern orchards if more acreage were planted. I do not think that the advice has been as effective as the actual conditions faced have been. I have seen more orchards pulled up than set out in the last few months.

Mr. Hershiser says the unschooled, untutored owner of bees is the menace. True; but he is not *the* menace in the West. The menace in the West is one hundred or a thousand alert intelligent specialists all trying to sell their year's production in sixty days and get their money for it so they can stop some of their loans at ten and fifteen per cent. Some means must be devised to advance twenty-five to fifty per cent of the value of the honey to the producer at once, and then let the honey be held until it can be distributed and sold in the unsupplied markets. At least seventy-five per cent of the bees in Colorado are owned by men who run them as a business proposition, and produce a commercial article of honey. This, I believe, is true of the other Inter-mountain States.

I was told several times by Kansas City grocers that they could sell three times as much comb honey at 15 cents as they could at 20 cents. When comb honey retails in Kansas City at 15 cents what will the producer in Colorado, Utah, or Idaho get? He got this past year \$1.75 to \$2.00 a case for 24 sections of well-packed honey. His shipping-case cost him 19 to 25 cents each, and his sections \$5.00 to \$6.00 per 1000, and other supplies in proportion. If he borrowed money it cost him ten to fifteen per cent. Comb honey has been retailing in Boulder for some months at 10 to 12½ cents for beautiful, clear, heavy-weight honey. Some of the grocers lost money on it. These prices are getting down close to the actual cost of production, and some honey has undoubtedly been sold below it. Let us get together and have some education to change these conditions.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

I have some samples of honey from the first cases extracted that are surely fine—so white that you can see letters through a glass of it, and so thick it can almost be tied in a knot.

* * *

The State asylum at Patton is said to be full of beekeepers, most of whom are suffering with fog on the brain. Attending physicians say all will recover with the advent of clear warm weather.

* * *

June 7 was one of the coldest, most cloudy, and disagreeable days of the season. A coal fire was burning all day at my home, and really was a comfort. Late in the day heavy showers fell, and a general clearing-up followed, since which time we have had beautiful warm days.

* * *

E. J. Atchley, in the *Western Honey Bee*, thinks neither good queens nor drones can be raised out of season; yet I made big money from those raised and introduced in October last year, while those introduced in April and May failed me to a great extent in the midst of the heaviest part of the present season. It is more profitable to introduce queens in late summer and autumn than at any other time, for they as a rule give a good account of themselves the following spring.

* * *

A poor queen can not always be judged by the amount of bees in her colony. I have known this rule to be used, but it is not infallible. Recently I had a very small colony whose queen to all appearances was first class. To test her I exchanged stands with a very strong colony. In six days she had increased her brood space more than ten times the original amount. I was so pleased with the outcome of this trial that I have tried it on others, saving several fine layers that I might otherwise have destroyed. A weak colony at the end of a long honey dearth is not necessarily a sign of a poor queen.

* * *

Will the specialist beekeeper ever again suffer severe winter losses? asks the headline in one of J. L. Byer's notes on page 326, May 1, to which I venture the answer, "yes." When the beekeeper thinks he has about mastered the business of making a perfect score along this line, he will some

time see that he has missed the mark about 50 per cent, for no apparent cause other than the shifting of conditions in nature's plan to a point that had never before been encountered. To-day there are many beekeepers in our Southland, long since classed as professionals, who have only half the number of colonies they had early last season, in some instances a fourth. This is not because they are not specialists, but because they met problems they were not able to solve in time to prevent heavy loss. These problems were hard to foresee.

* * *

Mr. Editor, do you not believe it is a matter of education more than the flavor of honey that guides the consumer to the kind of honey he purchases? My second daughter will not touch comb honey, because she has eaten only extracted. She says comb honey is not good. A neighbor of mine thinks that only buckwheat honey from New York is good to eat. Another wants his honey candied hard so he can cut the top out of the can and serve it butter style. There are hundreds, and I might say thousands, of people in this State who, in speaking of honey, think only of the extracted product. In the East I once undertook selling extracted honey in my local market, but failed, because people were not used to it and thought it was squeezed through a cloth or tramped out by foot power—that it must of necessity have sugar in it or it would not candy.

* * *

I have read from time to time of many peculiar cases of bee-sting poisoning; but the one that has come nearest home, and was the most peculiar I have ever seen, happened last week. My wife is very susceptible to the poison of the sting of a bee, and last week she was stung on the thumb between the nail and the first knuckle joint. In a few minutes she began to cough violently, which continued until she was exhausted. All day at intervals the coughing spells would continue. But the most peculiar feature of the incident was that in thirty minutes her eye was swollen almost shut, although the direct swelling from the sting reached only a short distance above the wrist. There was a red line about half an inch wide traveled from the sting up the arm, over the shoulder, the neck and face, and the swelling of the eye began with the result mentioned.

J. L. Byer,

NOTES FROM CANADA

Mt. Joy, Ont.

Reports from those fortunate enough to visit friend Sibbald's apiary on the 25th of May at the big field meet say that all had a good time. While not there myself, I feel quite sure that a pleasant and profitable time would be spent by all present. We started across country—a trip of over 50 miles from our place, and when half way there a heavy rain kept us at a friend's home for half a day. As we still had 25 miles ahead of us with heavy hills and some clay roads, we thought better to turn back home again.

* * *

On page 432, June 1, Mr. Buchanan, of Tennessee, in giving a list of plants visited by the bees in his State, credits dandelion with nectar secretion alone. With us it is a great pollen-yielder, and of late years I am inclined to think that not so much nectar comes from the plant as I formerly believed. Willows yield most of the nectar at that season, the dandelion giving enough to impart the flavor peculiar to that plant.

He also mentions the aster as yielding a honey that granulates readily and makes good winter stores for the bees. This is likely down in Tennessee, but aster honey left in the brood-nests in the fall in northern locations too often spells death to the colony for many beekeepers to take a chance to winter their bees on this kind of stores.

* * *

In the Feb. 15th issue Dr. Miller says that our hotels have not yet got to the point of advertising for honey, as is the case in Switzerland. He is right, and more's the pity. Our hotel men seem to be very loath to serve honey on their tables. Of course, there are exceptions to this, but it is the rule just the same. They will tell you it is a "mussy" thing to serve; and if one watches people not used to eating honey, but *trying to eat* it for the first time, surely we shall have to agree with the hotel men. I was reared on the farm in a community where nearly all the people were of German descent. On the tables, abundance of good food was always in evidence; but the rule in most homes was that all "help themselves." Our home was no exception to this, and often can I remember the looks of mortification on the faces of the many city visitors that used to come to our place when they would try to take a spoonful of good ripe honey from the large dish that would be passed around the table. A spoonful would be dipped out and held for a while with an

uncertainty as to what to do. A sudden movement would be made toward the dessert-dish, and a long trail of honey would be on the table-cloth between the starting-point and final destination. Possibly we need to do some educational work along the lines of telling people how to handle honey if we ever expect to see it served regularly on the tables of our hotels.

* * *

I feel pretty sure that the estimate placed on the value of full-drawn combs for the production of extracted honey is in no way exaggerated, page 330, May 1, and yet how are we to explain the fact that some of our best comb-honey producers claim that they can produce nearly if not quite as much comb honey as they can extract? Mind you, I am not saying that this is a possibility; but I know some good producers of comb honey who make the claim, and their results seem to prove they are not far from right. In their case the bees have to draw out all the foundation and work in crowded quarters at that. But I feel pretty sure that the majority of producers with a full set of drawn combs will produce at least twice as much extracted as comb honey, especially if the season is none too good a one.

* * *

Mr. Hershisser's article on page 331, May 1, is interesting, and much of it conclusive. His writings generally are of that class. However, I do not agree with him in all he says; but for want of space in this department it would be unwise for me to try to take issue with him. And just here I might remark that the writer of these notes is no doubt referred to in a veiled manner by friend Hershisser when he speaks of the "two classes of beekeepers." No doubt Mr. H. will smile when he sees this, and say, "If the shoe fits, put it on," and I hasten to assure him that I gladly do so, and, more than that, there is no "pinch" noticed at all, for it slips on comfortably. Why? Just because I happen to know that I am in mighty good company, as evidenced by the scores of unsolicited letters from the best-known and most representative beekeepers all over the United States and Canada, endorsing the position I have taken in a certain journal devoted to the beekeeping interests.

In connection with this subject of the value of schools and other educational means of helping beekeepers, please notice that not once have I combated *any* real work along

that line! but I have and still do oppose certain methods of booming and often misrepresenting the possibilities of the industry as has been done in the past. This position is a lawful one for any person to take, and he would indeed be a hypocrite, to say the least, if he thought one way and expressed himself publicly in another manner.

Regarding the matter of overstocking, the editor says, page 333, May 1, that he happens to know that the apicultural student at college has it pounded into him that it is foolish to locate his apiary near one already established. This is no criticism of the above statement, for I would expect such teaching to be given. However, many have no hesitation in doing this very thing, no matter how much "pounding" has been done to the contrary. But just here let me whisper, that beginners are not always the only transgressors in this respect, for I have known old beekeepers to go and do this very thing; and unless there is some great big and worthy excuse for such a move, the least that can be said in defense of the practice is that "it is hardly commendable."

* * *

DISTANT PASTURES ALWAYS LOOK GREEN.

The above is an old and true saying. I am reminded of this when I often see people thinking that almost every location is better than their own. In some seasons I have been tempted to think that myself. Two years ago I ran across what I thought was one of the greatest clover locations in Ontario, judging by the looks of the country at the time, and by the past records as told to me by people living there. As a result of these impressions I established a large apiary in that location, since for a few years previous crops had been slim in our home location. Well, as a sequel to this move I might say that in this choice location for the two years since we moved there, the greatest drouth in the history of that section has practically killed all the clover. Last year we had a heavy crop in our old locations; and if all the bees moved up north had been near home, results in dollars would have run up to quite a tidy sum over and above the receipts of the apiary where it is now situated. Now, I believe the good seasons will again return to that section, and we intend to stay there with the bees, and wait for a while at least. None of the bees were taken from the home locations in starting this out-apiary, and the moral I have in view in giving this little experience is to warn the man with but a single apiary not to be in a hurry in rushing into a another location simply because for one year said location

does better than where he is situated. Moving bees and starting outyards at a distance costs money and a lot of work; and after one has gone to all this sacrifice, and then in the end learns that he has left a better location than the one into which he has moved, he is apt to think that experience, even if a good teacher, is sometimes a mighty expensive one as well.

* * *

SEASON PROSPECTS TO DATE.

Weather conditions since my last writing have changed but little, and to-day, June 11, our section of the country is very dry, and the little clover we have is short and stunted, just coming into bloom nicely. Unless something out of the ordinary should occur, we certainly cannot look for much clover in our locality this year. I have just returned from the apiary 100 miles north of my home, and there the conditions are still worse, scarcely any rain having fallen this spring. I understand that conditions are better in western Ontario, as the drouth was not so severe there last season as with us, and this spring they have had numerous showers. Taking conditions in general for the Province, I predict a light yield of clover honey; but then, one never knows for sure, as occasionally something we do not look for occurs in beekeeping, even in so far as our expectations are concerned, as has been proven over and over to all who have been in the game for any length of time.

Very little honey was gathered from the early willows this year, as the season was generally cool. But when the large yellow willows and the sugar maple came into bloom we had five very warm moist days, and how the nectar did come in! The maples broke all previous records in our locality, and brood-nests were jammed with honey and pollen. Fruit-bloom lasted but a few days, and yielded little, so the rush referred to was a splendid thing for the bees.

Never before have I had so much honey in the brood-nests at this time of the year; and as it is impossible to get it all into brood before clover comes on, I should not be surprised if more or less of this honey got hoisted above into supers if we happen to get a flow from clover. Although we have had a drouth of nectar for ten days since fruit-bloom, yet all colonies are heavy with new and old honey, many of them having considerable in the supers. Of course, this means that the bees are ready for any thing that comes along in the shape of a honey-flow, and this is the one bright spot in present prospects.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

SOMETHING BETTER THAN FINANCE IN BEE-KEEPING.

"Why don't you old fellows like Dr. Miller, J. E. Crane, and yourself tell us something of the financial success of your forty to fifty years of beekeeping? I am thinking of going into beekeeping; but unless there is money in the venture, I do not care for the undertaking. How much have you laid aside from the bees since the year 1869, the year you embarked in apiculture?"

Well, before saying any thing regarding the thing our correspondent wants to know, allow me to say that my advice to the man who has no ideas regarding beekeeping other than the "money there is in the venture," is, "keep out of the bee business." In fact, the person who can see nothing but the money there is in any venture will have a hard time passing through the world. I remember hiring a man to work for me when I was on the old farm, before I commenced to keep bees, who was continually looking at the sun to see how soon it would be quitting time for the day; and the later he worked the more he would lean on his hoe, and the more tired he would become, all the time proclaiming that he did not believe there was any money in a corn crop. This man wanted big wages, and was not working for any thing but just his wages. To-day he has little if any more than he had fifty years ago.

Another time I hired a man by the month, and this man could see fun in every thing I set him at. He was up early in the morning, and would whistle and sing while he turned off one job after another. He would hoe one row after another of corn, telling me at noon or night how nice it grew, and what a nice green color the leaves were taking on, surprising me by the eagerness he manifested in doing a good job, and keeping ahead of the work we had to do. We had a long job of laying over an old rail fence which we used as "knitting" work when nothing else was pressing. At noon, on the last day before his time was out, it commenced to rain slowly, making every thing outside wet and disagreeable. After dinner he asked me what he was to go at for his last half day with me. I told him to sit down and read a while, and when he felt like it to pack up his things, and later on I would carry him home. He said, "There is that old rail fence we did not finish. I'll go at that." I told him that, of all the worst things that could be done on a rainy day,

the laying-over of an old rail fence was the worst, and that he was to do only as I had told him. After a little I missed him; and on going to the door overlooking the old fence, there he was with an old coat on laying over the fence, whistling and singing away in the rain. He came in half an hour before it was time for me to take him home, saying that I would not have to lay over any more old fence, for it was all finished. This man has to-day a fine place all paid for, with money in the bank, and has held many offices of public trust in the community in which he located.

Now a word or two about the money there is in beekeeping. No man can ever become a Rockefeller or a Morgan through beekeeping; but he can make a comfortable living for himself and his family, secure a good home in which to live, and lay aside something to carry him through his old age so that he need not worry about "over the hills to the poorhouse." But this is only a small part of apiculture (big fortunes made in any business tend to make a man sordid and morose, taking all the pleasure and poetry out of life. He can see only business all the day, and dream of it at night). Besides a comfortable living, a good home, and something laid aside for old age, there is in apiculture something which money cannot buy. The merry hum of the bees cheers the heart, the green fields and leafy boughs make the eyes shine with brightness; the song of the bobolink, robin, and oriole brings music to the soul, while the growing combs of honey sparkling in the sections, or being capped with snowy whiteness, whet the appetite with the keenest relish.

Say, Mr. Correspondent, I would not exchange all these pleasures which have come to me through my apicultural life since March 1, 1869, for the fortune of a Morgan or a Rockefeller. The beekeeper who has first sought the kingdom of heaven and its righteousness has a right to be the happiest man or woman on earth; and if he is not thus happy it is because he does not reach out his hands and take what is offered by his heavenly Father. In my opinion no rural pursuit is the equal of apiculture for pleasure and independence; and it compares favorably with the rest for profit if it is rightly managed. In no year have I ever failed to realize a good profit on the labor and capital invested. But to give just the figures seems too cold and calculating when I look at the pleasure side.

GENERAL CORRESPONDENCE

GOOD COMBS; THEIR VALUE, AND HOW TO PRODUCE THEM

Third Paper

BY ARTHUR C. MILLER

The second paper on this subject dealt with the proper wiring of the frames, giving a method which produces square frames and tight wires free from stretch under service conditions. They are ready for the foundation, and we must decide what grade to use.

I use the lightest "brood" foundation I can buy. With the paper, a pound contains eleven to twelve sheets $7\frac{7}{8}$ by $16\frac{3}{4}$ inches. Any thing smaller than this is used at a loss. The frames I use have an inch-thick top-bar *without* grooves, $\frac{3}{8}$ inch thick end-bars, and $\frac{1}{4}$ -inch-thick bottom-bar, and the above-dimensioned sheets are just right for them. I should prefer sheets a scant $\frac{1}{8}$ inch longer, if I could be sure of accurate cutting; but as I cannot, I use those of dimensions given.

I have gotten over bewailing small variations in dimensions; but I insist on having sheets with *straight* edges, and cut *square*. Once you run up against a lot that are not right in those particulars, and you will appreciate my attitude. It is almost unusable; and, even if used, will take so much time and give such unsatisfactory results that you will never accept another lot like it.

As to the weight, I use the extremely light for economy. In 100-pound lots I get it at an average price of 60 cents per pound, which is about five cents a sheet, which for the $9\frac{1}{2}$ sheets I use in a hive costs $47\frac{1}{2}$ cents. "Medium brood" foundation costs in same quantities about 56 cents for $7\frac{1}{4}$ sheets, or 8 cents a sheet, which, for $9\frac{1}{2}$ sheets is 76 cents. Light brood costs $6\frac{1}{2}$ cents a sheet, or 58 cents a hive. It is not difficult to see that the highest-priced foundation is the cheapest, *provided* you know how to use it.

I frankly confess that it takes more skill or deftness to work with the extra light than with the others; but as soon as the skill is acquired it works as easily as the others, and the economy is worth all the trouble of acquiring the skill.

For a time I was inclined to want my foundation without paper between the sheets, also for economy, because there are several pounds of paper in a few hundred pounds of foundation; but I soon discovered that the paper was worth all it cost me. (As I recall it now, it adds about one cent a pound to the cost of the foundation.)

The implements I use are few and simple, and can be bought in any village for a very small sum. The only exception is the board on which to lay the foundation and frame while fastening, etc., and that is easily made. It is in length almost the inside length of the frame—just enough shorter to permit the frame to slip on and off easily. In width it is about one-eighth inch narrower than the inside depth of the frame, and in one edge are driven two brass-headed upholstery nails (these taper, and the frame will not catch on them), so that, when a frame is put on the board, the heads of these nails just rub against the frame. The top-bar is always put against this edge. This board is fastened to two cleats, and when in use it is screwed or clamped firmly to bench or table. This is not necessary, but will be found to facilitate the work. Preferably the bottom-bar is toward the operator, and light should be at one side or come over and behind the operator's head. I like to have the board slope toward the top-bar edge, and do this by wedging up the edge nearest me about one inch.

The other implements, two dishes for wax and the tools shown in view No. 1, consist of a small soldering-iron and two brushes. The soldering-iron is for bedding the wires, and is filed down quite thin at the end one way, and into an arc the other way. Over the edge of this arc is filed a groove just deep enough so it will run on a wire and not slip off, and *no deeper*. Then it is tinned, because the hot wax turns the copper green, and I do not care for the green copper on my foundation and in my combs. It may be so slight as to be harmless; but as I can avoid it I do. Such an "iron" can be purchased for about 25 cents.

The large brush is for "painting" the foundation with wax, and the small one is for fastening the foundation to the frame. It costs 10 cents, and is as far superior to the "wax-tube" and "wax-spoon" as a movable-comb hive is to a log "gum." I tried all shapes and sizes, and all lengths of bristles, and find the one illustrated the best. It is a common marking-brush, such as is used for marking boxes, barrels, etc.

The dishes for the wax are preferably "double-boilers," the cheap sort obtainable at any five and ten cent store. Any dish

will do; but the double boilers are best and safest.

Across the middle of the wax-dish wedge a stick (piece of a bottom-bar) to wipe the brush on. It is better than wiping across the edge of the dish, as no wax runs down the outside.

If single instead of double dishes are used, great care must be taken not to burn the brushes. Put a piece of wire cloth in the bottom of each wax-dish. A square piece with the corners folded *under* will hold the brushes from the pan bottom. Also, always remove the brushes from the wax before it cools. If you do not at the start, you will later.

Into one dish is put pure wax. This is for the large brush. Into the other is put three parts wax and one part rosin. This is for the small brush, and is used to attach the foundation to the frame.

The outfit is placed as follows: On the bench directly in front of me is the board with a two-burner gas "flat" or heater (an oil-stove with two burners will do as well). Over each of the burners is a dish of wax. A lower temperature is needed for the rosin-wax than for the other. The soldering-iron is placed so that it projects over part of one of the flames. The foundation is piled on the bench convenient to one hand, and frames are convenient to the other. On the floor close at hand are a few hive-bodies to hang the filled frames in.

A sheet of foundation, *together with* the sheet of paper under it, is laid on the board, paper side down. The wired frame is laid over all; the foundation is pushed close against the top-bar and one end-bar. And right here you will learn the *value* of square frames and square foundation. Then the small brush with rosin-wax is drawn along the top-bar and foundation, and down each end-bar. Then the "iron" is drawn along the wires, bedding and securely fastening them. Then the large brush is wiped across the stick in the dish to remove any excess of wax, and the foundation painted with it.

The frame is now turned over, the paper peeled off, that surface of the foundation painted, and the rosin-wax drawn along the top-bar and down the end-bars—all very simple and very rapid. I can pick up the frame and foundation, fasten it with rosin-wax on both sides (but not "paint" surface), bed the wires, and remove it from the board in thirty seconds. Try that stunt with the groove-and-wedge plan and spur imbedder, and see where you come out.

But if you try this system without some knowledge of the principles involved, you will have much labor and trouble before you

succeed. Every part of the work is modified by some other part or condition. If the room is cool you can work more rapidly than if it is warm, and at the same time you need a warmer iron and warmer wax. The thinner the foundation, the more careful you must be about the heat of iron and wax, and also of "touch" and speed. All of which suggests a difficult and troublesome process, but such is not the case. Once you have learned the temperature at which the wax and iron work best at the ordinary temperature of the room, you have only to raise or lower it slightly to meet changes in that factor.

If the rosin-wax is too hot, it will melt the edge of the foundation and run down through. It would stick the frame, foundation, and board together were it not for the space made by the two brass-headed upholstery nails referred to earlier. A little wax will flow to the under surface of the foundation any way, so the space is essential. If the rosin-wax is too cool it does not flow from the brush readily, does not fasten the foundation easily, and calls for too many strokes of the brush. Also, it does not spread on the frame in a thin nice stripe as it should.

The rosin-wax will fasten the foundation securely, while plain wax will not; and, furthermore, and most important, the bees can no more resist the attraction of those rosin-wax stripes than the small boy can resist the lure of the proverbial jam-pot. No sooner do the bees begin to gather on the frame and foundation than they begin to draw out the walls of the cells next to the wood, and the result is a joy to the beekeeper.

In "painting" the foundation if the wax is too hot it softens the walls, does not leave enough without a second stroke of the brush, and a second stroke on the softened foundation makes a mess—that is to say, it flattens it to almost a smooth sheet, resulting later in drone-cells in spots. If the wax is too cold the brush drags, a needless amount of wax is used, and the foundation is not properly re-enforced. The ideal coating gives a thickened *rim* to most of the cells, much as the bees keep them when building natural comb. This very materially strengthens the foundation and lessens stretching. I often illustrate the condition by likening it to putting a rigid cast-iron coating on a tough wrought-iron base. Never mind if some cells get a thin cover or capping of wax; or if the wax fills a few cells you may trust the bees to fix every thing as it should be. A very heavy coating of wax may be applied, and the bees will use it all, but there is no



Arthur C. Miller's foundation-fixing tools. The point of the iron is grooved so that it will follow the wire.

advantage in more than enough to stiffen the foundation. The amount of wax in the brush, the weight of the strokes, and the times over, depend on the size (thickness and length) of the brush and temperature of the wax. Nothing but practice can show you this, but it is worth all the effort necessary to learn.

This process was invented by a Mr. Henry Vogeler, and patented in 1900. In 1912 the *Review* secured and published permission to its subscribers to use the process. I consider Mr. Vogeler's invention almost as valuable as the invention of foundation itself.

The use of the iron for bedding and fastening the wires is simple. Only three factors are involved—heat of the iron, pressure on the wire, and swiftness with which it is drawn. If it is too hot, it will melt holes or even long slots in the foundation. If too

cold it does not “bed” the wire nor properly cement the foundation to it. The warmer it is, the faster it can or must be drawn along the wire; and the cooler it is, the slower it must go. Too much pressure will cut the wire through. The painting will usually remedy this, but it is a poor craftsman who does such work.

If one's hand is not steady, just place the point of the iron against the end-bar of the frame, just above the wire, and slide it down on to the wire—a proceeding which sounds slow, but is not. It is rather important to draw the iron *straight*, otherwise it may jump the wire and make a hole in the foundation. If it does you will see plainly why I have the paper between the foundation and the

board. You can *peel* the paper from the foundation, but if it were not there the foundation would be fastened unpleasantly tight to the board. The paper is one of the little items that make for speed and comfort.

It may be contended that the hot iron will stretch the wire. Well, perhaps it does for all I know; but you have only to look at my frames of foundation and my combs, and take note of the time it takes me to do the work, to satisfy yourself of the value of the process. And I secured these results without the painting process but with heavier foundation.

I have been asked the total cost of a completed comb in material and my time. Here it is as nearly as I can figure it. Frame, $3\frac{1}{2}$ cents; foundation, 5 cents; wax, $\frac{1}{2}$ cent (high); labor, wire, etc., 5 cents. Total, 14 cents. Omitting labor, which is variable in

value, can you produce any such combs by any other process, for a cash outlay of 9 cents each? But cash is not the only item. For speed, pleasure, and results are there also.

Getting the foundation built into combs is usually a matter of chance, but it should not be. It is very easy to lose much of the advantage gained by the methods which I have been describing by giving the frames of foundation to unsuitable colonies or at unfavorable times. Veteran beekeepers usually know that the best results are secured by giving one sheet at a time to strong colonies during a good flow, placing it in the middle of the brood-nest, and the novice

should follow that method, or, if deviating from it, should be sure that the bees are doing good field work or are being well fed. Personally, I prefer to have my foundation drawn out in upper stories over full colonies, and I know of no better time than when the bees are busy on honey-dew. The combs produced then are filled more or less with it; and later, when the combs are put into the brood-nest, it is turned into bees.

The subject is a large one, and really deserves full treatment; but the best conditions for the work may be summarized in these words: Give the foundation to strong colonies in prosperous times.

Providence, R. I.

ANOTHER EXPERIMENT IN BREEDING LARGER BEES IN DRONE-CELLS

BY M. Y. CALCUTT

I have been carrying on an experiment the past season with raising bees in drone-cells. I noticed that you did something along this line some years ago, and found that the bees contract the cells. I found that was true as to the bees that were first placed on the drone comb, but was not true of the generation that was raised in the drone comb. These bees are much larger than my other workers—in fact, they are so large that novices remark their large size. Dr. Miller's contention with me was that I might as well claim that large boots make large feet. Well, Mr. Root, won't they do that same thing? These bees will not be allowed any thing but comb four cells to the inch this coming season. I had them raise their own queen from the drone-cells, and they know no other size of comb; hence they do not contract it. I am carrying these experiments on in the observation hive, and can report correctly on each day's work. Their tongues are longer than my other bees, and I think they will go over 18-100 of an inch. I will make a further report at the end of next season's work.

Seattle, Wash.

[Dr. Miller has had special opportunities of being informed in regard to breeding larger bees, and we asked him to reply, therefore, to the foregoing. His reply follows.—ED.]

At some time in his career it is likely to occur to the ambitious beekeeper that it would be a fine thing to have bees of larger size than usual, and that the nearest way to reach such a thing would be by having them

reared in larger cells. That might be confidently expected if the young workers were at all cramped in worker-cells of the usual size. But are they? Is it not likely that in the economy of the hive, where every thing is so nicely adjusted to its desired end, the cell is exactly adapted to the size of the bee—not an iota too large, not an iota too small?

Actual trial, however, is better than trying to reason it out. At one time I put a colony of bees upon a set of drone-combs. Instead of going promptly to work to rear bees of enlarged size, they just decently swarmed out. None of that sort of combs for them! If drone-comb in smaller quantity be given, it is likely to be used either for storing honey or for rearing drones, but not always. Workers reared in drone-cells are much more common than is generally supposed. I venture to say that it would be a difficult thing for you to find an apiary of 50 colonies or more in which you could not find drone-cells in which workers had been reared. Let an old queen have an inordinate quantity of drone-comb, and an inordinate quantity of drones will be reared. But let a vigorous young queen succeed to the throne, and any drone-comb that happens within the brood-nest is likely to be filled with worker-brood. Drone-comb that has been so used is easily recognized. The mouth of each cell is narrowed to the size of a worker-cell, giving it the appearance of being partly sealed over.

But workers from such cells (and I have watched them as they emerged) are not perceptibly larger than common. If they were, it ought to be a common thing in any apiary



Second crop of white clover at Cannon Falls, Minn., caused by copious rains in July.
Photographed July 18 by S. C. Swanson.

of considerable size to find these enlarged workers.

All of this, however, is not conclusive proof that workers beyond the usual size are not possible. Abbe Pincot has for several years maintained that he has bees of unusual size, reared in cells larger than normal. To be sure, his statement is not universally accepted; indeed, it has been strongly opposed, so that pages have been occupied in the discussion. At the same time, it is true that a good many foundation-presses have been distributed in Europe making cells larger than the common size. Yet I do not remember to have seen it claimed that any one else had succeeded in rearing larger bees in these cells of larger size.

I have, however, had indubitable proof that bees above the usual size can be reared, because *they have been reared*. Some years ago a Florida physician, whose name I do not now recall, sent me a queen with a few workers, and pieces of drone and worker comb. The difference in the size of the bees was not so marked, but the larger size of the cells in the comb was very striking—possibly because it is easier to measure cells than bees. As I now recall it, the worker-cells were in the neighborhood of the size of ordinary drone-cells, and the drone-cells

correspondingly larger. I don't see how it could be possible that there was any fake in the case. I think any experienced beekeeper would have said that the combs were indisputably built by the bees.

I do not know by what process these bees were obtained, nor do I know whether they are yet in existence. The queen I received was put upon ordinary worker-comb, and of course her progeny were of the usual size. Some one will ask why I didn't put her on drone-comb. I didn't know enough. But the fact remains that, by whatever means obtained, bees of unusual size are possible.

Granted that we may have enlarged bees, there remains the question as to the gain. Will larger bees fly faster or further? Not at all certain; indeed, it may be the other way. A bantam is a better flier than a Buff Cochin. A larger bee should have a larger honey-sac. That might or might not be an advantage. But surely there would be advantage in the greater tongue-length of larger bees, if that greater length should secure from red clover the treasures from which our common bees are now barred. That still leaves the question whether it is better to work for larger tongues or smaller blossoms. But that's another story.

The matter stands in this way: Larger

bees are possible, for larger bees have been. It is not impossible that the way to get them is through larger cells—perhaps drone-cells. To be sure, a larger shoe will not breed a larger foot; but it is possible that a bee is

not the same as a foot. A bigger bee may be no gain; and, again, it may be. At any rate, Mr. Calcutt's efforts are interesting, and one cannot but wish him success.

C. C. MILLER.

A POWER EXTRACTING-OUTFIT AT LAST

BY ELMER HUTCHINSON

It is now more than thirty years since I formed a partnership with my late brother, W. Z. Hutchinson, and began keeping bees. At that time we had a Novice two-frame honey-extractor. We also had a large foot-power buzz-saw with which we used to cut out the most of our bee-supplies. Sometimes when resting from the arduous task of running it we used to say, "If we only had a small engine to run it, what a lot of hard work it would save us!" I do not remember whether gasoline-engines were in use then or not, but I think they were; but they were not a very reliable source of power at that time. Certainly no one had yet thought of using one to turn an extractor.

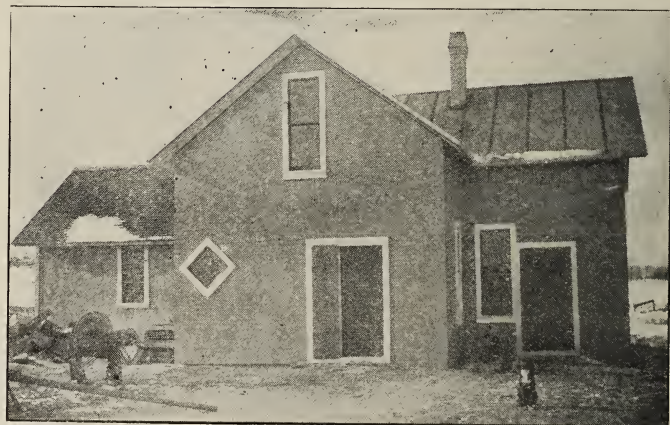
At that time the production of extracted honey was not the extensive business that it now is, most of the honey produced then being sold in the comb. There were no ball-bearing reversible extractors and honey-pumps, driven by power; no steam-heated honey-knives, no Porter bee-escapes, no queen-excluding honey-boards, and last, but not least, there was no market for extracted honey in large lots at paying prices.

When my brother and I started keeping bees in the raspberry regions of Northern Michigan we intended to get an eight-frame extractor and a small engine to run it that we could move from one yard to another; and had not his death occurred we would have bought the outfit the following year. After his death I bought his interest in the bees and fixtures we had here in the North, and that delayed my getting a power outfit for two years.

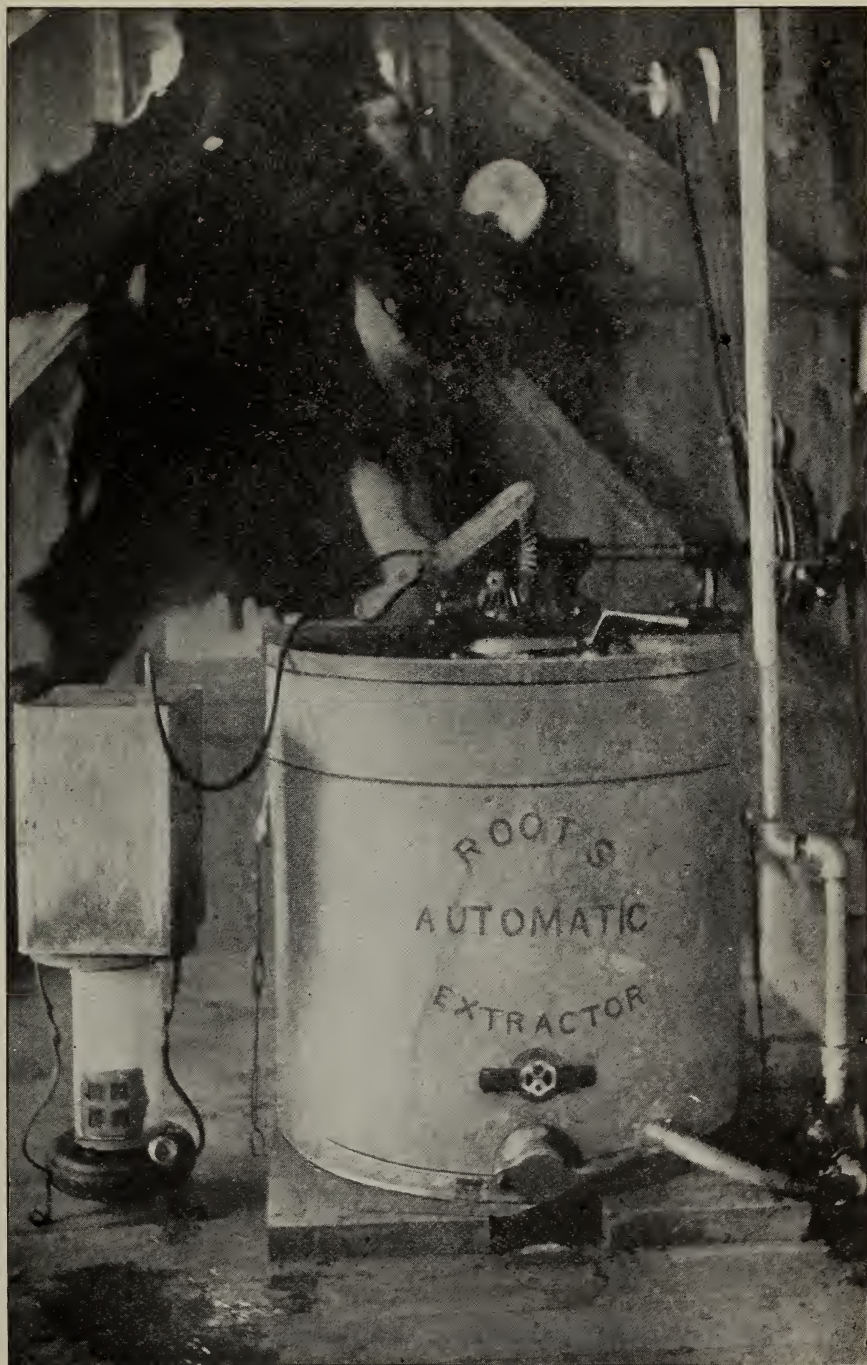
Last winter we were clearing off a piece of land. There was quite a lot of beech and maple timber on it that would make good firewood, which we cut in log lengths and piled upon skids. The ques-

tion then arose as to how to get it cut into stove lengths. A neighbor had an old rattle-trap machine for sawing wood, and an old nearly worn-out gasoline-engine. I studied on the question for some time as to whether to get him to saw it or buy an outfit of my own. I finally decided to hire it cut, moved his machinery over, and went at it. When his engine would run, something generally ailed the sawing-machine, and when we would get that fixed, then the engine would balk. It cost me 50 cts. a cord to get that wood blocked off stove length.

Well, the idea of owning an engine had become fixed in my mind, and, like Banquo's ghost, it would not down. So I began sending for engine catalogs. I believe I wrote to every firm in the United States that makes gasoline-engines, and I put in the rest of the winter studying catalogs and talking with agents who had been sent to try and sell me an engine. I wanted one that would run my extractor and honey-pump, buzz-saw in the shop, pump water, cut wood, or do any kind of work I wanted done. I finally decided on a four horse-power four-cycle engine that could be run on kerosene, thus saving half the cost for fuel. The only difference there is between this engine and a regular gasoline-engine is that there is a small tank in front on the



Elmer Hutchinson's plant. Left wing, honey and extracting room; central part, shop; right wing, well-house and engine-room.



Hutchinson's steam knife, boiler, honey-extractor, and pump, belted to pulley on the line shaft.

oil-engine to put gasoline in to start it with. The engine gives perfect satisfaction, and does splendid work, running as steadily and

regularly as a clock all day, with no attention whatever except an occasional oiling. A gallon of kerosene will last as long as a

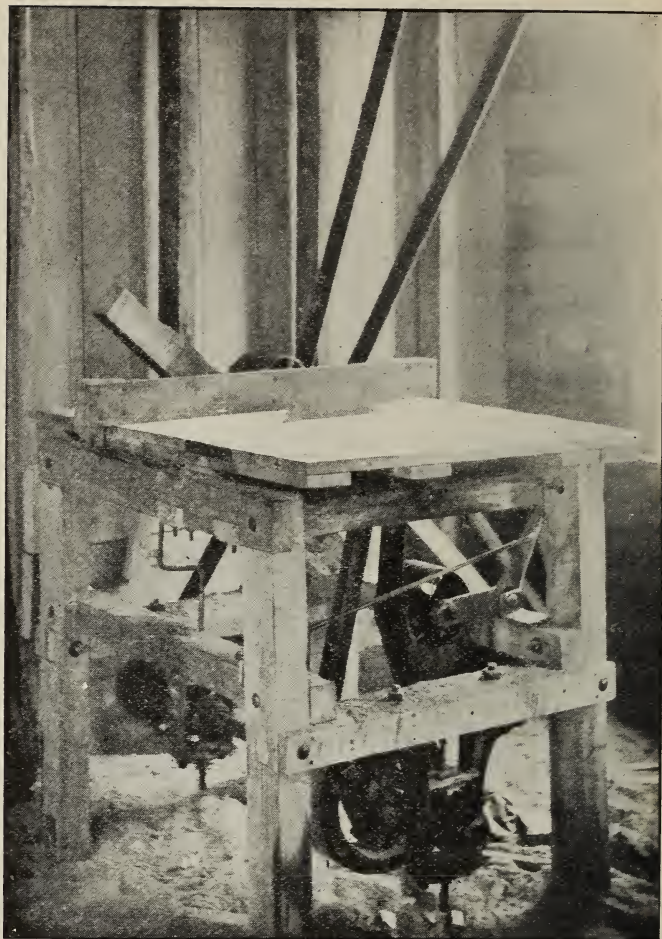
gallon of gasoline, and gives as much power. The only trouble in using kerosene, that I have found, is that the electric igniter has to be cleaned somewhat often. That is a short job, but it is a dirty one.

If I were going to buy a small engine, a two-horse-power or smaller, I would get one to run on gasoline. The extra cost in running one of this size on gasoline would not amount to much, for it would use but a gallon or so a day; and for a very small engine I believe the gasoline would give better service. But from a three-horse-power up, there is quite a saving on the fuel bill in favor of kerosene; and after you have learned to run one it gives as good service as one does run on gasoline. My four-horse-power engine gives sufficient power to cut eight cords of stove wood per hour from green hardwood poles if they do not exceed 8 or 9 inches in diameter, and I can rip pine lumber for frames as fast as I can shove it through.

After buying the engine I had to have more shop room. I had a honey-house 14 x 16 feet. Last summer I built on another part 16 x 24 feet for a shop; and on one side of that a building 10 x 16 feet was erected for an engine and well-house, all two stories high, the upper story being used for storage room.

The new parts have cement floors, and make an ideal place to store honey on after it is canned ready to ship. In the shop I have a work-bench in one corner, a buzz-saw in another corner, and a large box stove that makes a dandy place to render wax. If I spill a little on the floor, there is no damage done.

The older building I use for an extracting-room. The extractor and honey-pump are fastened to the floor, and are left there the year round. When I want to start extracting, all I have to do is to start the



Home-made saw.

engine, slip on the belt, and off we go. There is a line shaft running from the engine-room through the shop into the extracting room, and all the machinery is run from that. I think it gives a more steady motion than it does when the engine is belted direct to the machine. There is a tank, at one side of the extractor, that will hold 4000 lbs. of honey. The honey is strained through a cheese-cloth strainer, and allowed to stand a week or more before it is drawn off in cans. Beekeepers who can their honey as fast as it is extracted would be surprised to see the amount of scum that will rise to the top when it is allowed to stand a few days before being canned.

My buzz-saw I made myself at a cost of about \$14.00 for the materials, including four saws and the belting. I also made my wax-press. The pressure is applied by means of an iron bench-vise screw. I can get about



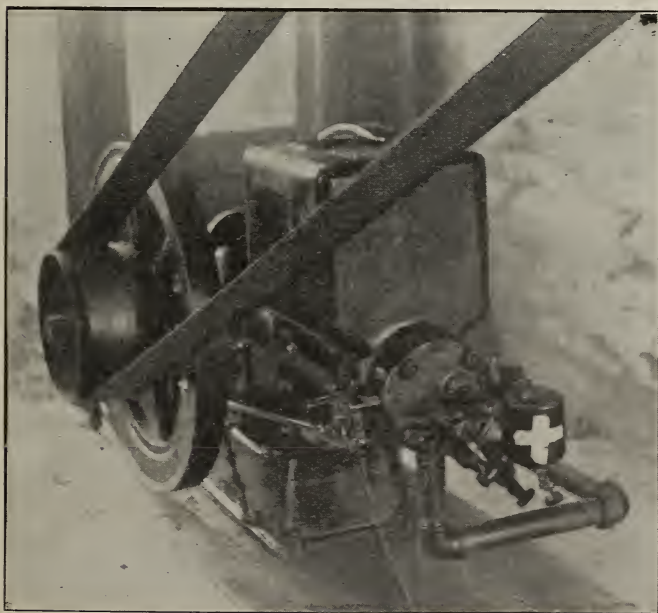
Home-made wax-press with tank on stove for melting old combs and cappings.

2½ lbs. of wax from ten old L. combs, so I don't think I leave very much wax in the slumgum.

At the close of the raspberry-honey harvest we took the honey off and stored it in the bee-cellars, so the bees could not mix

buckwheat honey with it. It was late in October when I finished my new building, got the line-shaft up, and the engine and machinery installed. Then we hauled the honey and piled it up in the shop, built a fire in the stove, and warmed it up a little, then started extracting. As I turned on the power and stood watching the extractor-reel spinning like a top, rapidly throwing out the thick waxy honey, my dream of years had come to pass. About the first thought that came to my mind was, "What a lot of honey we have left sticking to the combs! what a lot of hard work we have done that could all have been saved if we had only bought a power outfit years ago!"

I am already longing for next summer to come, so we can use our new outfit again. The beekeeper who has a steam-heated uncapping-knife, a power outfit, always includ-



Four-horse power engine that uses kerosene for fuel. The white cross indicates auxiliary tank holding gasoline for use in starting.

ing a honey-pump, and who cannot enjoy himself until he just aches using them, had better change his business. But laying aside the pleasure of using such an outfit, it is a money-saving proposition to own one. I have seen combs extracted by hand power that I know had more than two pounds of honey left in the combs of each super that could have been emptied clean, and in less time, with a power outfit. For the person who cannot get help, it is almost a necessity. I ran it alone awhile one day, did the uncapping, tending extractor, and all, and extracted at the rate of more than 300 lbs. an hour, and my extractor is only a four-frame one. I hope to have an eight-frame outfit next summer. We had every thing in perfect running order before we started extracting. The pulleys were all lined up perfectly. I spent more than three hours in getting the honey-pump fastened down and lined up to suit me; but when we did start, every thing worked well. The belt

slipping on the honey-pump was the only trouble we had; but a little belt-dressing quickly ended that.

I wish to say to all beekeepers who produce extracted honey, if you never saw a power outfit at work, go somewhere next summer where they have one, and see it work. My guess is, that you will soon own one yourself, even if you have to mortgage your automobile to pay for it. Knowing what I do now, if I had only 6000 lbs. of honey to extract, I would have a power outfit.

The most of my beekeeping life I have been in partnership in some form or other with my late brother, W. Z. Hutchinson, and through all the pleasure in using our new plant, there comes a feeling of sadness that he is not here to use it with me. His one great hobby, aside from bees, was machinery.

Pioneer, Mich.

BEES AND HORTICULTURE

In looking over our large stock of old bee-books we came across one in French entitled "Bees and Apiculture," written by Mr. A. de Frariere, and published in Paris in 1855. The advanced position taken by the author causes the book to seem almost as if published within a year. He was a successful and scientific beekeeper in his day, and has left a little work which should no longer be allowed to "waste its sweetness on the desert air." The chapter on the fertilization of fruit-blossoms by bees is so graphically given that we have translated it entire for the pleasure of our readers. It will be noted that the author seems to have had the impression that the promiscuous mixing of pollen on different branches and even different trees would have a tendency to cause the fruit to degenerate; but, as shown on page 229, March 15, this is a great advantage, especially when the pollen of one kind of apple is mingled with that from an entirely different kind. The writer not only shows that the bees do not do any damage to the blossoms, but confer a great benefit on them by fertilizing them.—Ed.

One of the prejudices (and they are numerous in France) which retard the development of apiculture in some countries is the belief that bees injure fruit-trees. As I have already given one instance of the kind I will risk a second one, in exact conformity to the truth, in order to dispel this erroneous opinion.

One of my friends, whose fine apiary I had just visited, told me one day of the opposition which he encountered at the hands of one of his farm-tenants, in setting out some hives at a point on his land that seemed very favorable for the bees.

"Would you believe it," he said to me, "that our peasants imagine very seriously that the bees are partly the cause of the bad crops from our fruit-trees? and their reasons for it are not lacking. I am convinced they are in error; but I have made efforts to enlighten them on this subject. To-morrow you will hear my tenant talk. You combat this prejudice, and perhaps you will have better success than I. I shall be able to use my authority; but I fear that, pushed to the wall, he will not try to prove

to me in one way or the other that I was wrong. The country people are very rustic."

It was only a few days after that when the weather permitted the realization of this plan. On that day the sun marched out victoriously into a cloudless sky. The peach, apricot, plum, and other trees, the blooming of which had been retarded by the cold days of the preceding month, displayed a thousand blossoms which spread out under its beneficent rays. Finally, all Nature was adorned as if she had invited all creatures to a splendid feast. The happy little birds twittered as they leaped from branch to branch, and myriads of insects hummed joyously, while the plants seemed to show with pride the limpid pearls which the dew had deposited on their growing leaves—a decoration of which the sun would soon deprive them.

The farm to which Mr. Sarrazin led me was situated at the extremity of a village which enjoyed the privilege of furnishing the most beautiful fruits, which were greatly admired in the market of Orleans. The farmer himself raised a considerable amount

of produce in his orchards, and was very proud of being reckoned among the most skillful horticulturists of the country.

"Good morning, father Philip," cried Mr. Sarrazin, as he saw a man turned with his back to the road, seemingly plunged in a sort of ecstacy at the view of a shower of white blossoms falling from the tops of the plum-trees. "Good morning! how goes it to-day?"

The interrupted man turned around suddenly, and saluted the two visitors.

"What are you doing there, father Philip—admiring your plum-trees as if estimating the crop in advance?"

"Ah! pardon me. I was thinking of you at this moment. I said to myself, as I watched the blossoms fall like the snow, that I had been too sagacious to allow myself to be led astray by your fine-spun reasoning on the subject of insects. Just listen."

He pointed at the blossoms with which the ground was whitened, and the bees humming on the trees.

"There! I have the pleasure," he continued, "of convincing you that these little animals injure our crops. See what happens, although almost nobody in the village has bees. Remember, now, if we have all of them, there will not remain a plum nor any fruit of any kind on our trees."

"Do you believe that, father Philip?"

"Do I believe it? Why, see for yourself, sir. I am only an ignoramus; but it does not require much science to understand what one can see with his own eyes. What do you see at this moment? Look, now—look!"

We were just then at the foot of one of the most beautiful plum-trees in the orchard. Hundreds of bees were struggling with each other on the beautiful blossoms, and even seemed to dispute their possession. At times there could be seen two or three bees suspended on the same blossom; and this, yielding to the unwonted weight, became detached, and dragged in its fall the lively little insects, as the farmer said.

Mr. Sarrazin waited for me to take up the argument as if he himself had been convinced. The farmer manifested his satisfaction by assuming a certain air of triumph over an adversary more skillful than himself.

"Let us examine carefully and see whether father Philip is right," Mr. Sarrazin said at last; "and if such is the case I will admit frankly, and there will be no further talk about putting bees on these premises."

I had had time to make my observations;

but I thought, and justly, that the only way to convince father Philip was to demonstrate the truth by visible evidence. Seizing a branch loaded with blossoms I explained very clearly that the bees could be accused of pulling down, a few moments before, only such blossoms as never could have attained maturity.

"Thus, so far from being injurious to your fruit-trees, the bees seem designed by Providence for one particular work. See," I added, showing him a large shaggy drone, six times larger than a common bee, which was hanging to the blossoms, but which, nevertheless, did not fall under the extra weight. I called father Philip's attention to the fact that, among the blossoms forming the same bouquet, one can rarely find more than one or two, rarely three, the peduncles of which are firmly fastened to the branch; the others, evidently not being designed for fertilization, naturally fall soon after the time of blooming. Those that resist this first crisis are detached later. After fertilization has begun, they exhaust needlessly a part of the sap designed for the young fruits which alone are capable of acquiring full growth.

The farmer was what might be called a candid man, and possessed of good sense. He did not hesitate to admit that my observations were just. He agreed graciously that, if all the blossoms were to become fertilized, the exhausted trees would perish, or else it would be years before they would be in condition to bear again.

Mr. Sarrazin was charmed to see his farmer-tenant of such a good disposition. He confirmed enthusiastically the last considerations, which he had even made himself, and which entirely exonerated the bees of the things of which they had been unjustly accused.

"There is still another thing," I added, "that militates in favor of insects nourished by honey and pollen; and that is, they are charged with the important mission of assisting fertilization of blossoms. When one bee alights on one blossom, and seeks to penetrate it to gain access to the honey (or nectar) deposited there, it occasions an agitation or shock, which causes something like a white cloud to arise, and this is the dust contained in the stamens. The pistil receives it, and thus fecundation is effected. In flying from blossom to blossom, one can easily believe that the bees favor somewhat the degeneracy of species; but that is nothing. Aside from a few exceptional cases, these insects, obeying a law of Providence, do not get a full load from a blossom of a

species different from the one they have just quit."

The farmer said he would no longer oppose Mr. Sarrazin's plan.

"And you will act wisely," added the latter. "Besides, is it not right for you to profit from the honey on your own trees, which neighboring bees will suck from your blossoms when you are not able to prevent

them from doing so? You are too good a man to let it all go to others."

This sally caused the man to laugh; and he was convinced when, at the swarming season, the bees gave him six hivefuls of honey by way of surplus.

The considerations I have just adduced will suffice to prove the benefits of bees to horticulture.

AN AUSTRALIAN HUSTLER

BY MAJOR SHALLARD

I am sending a photo of my son Phil with a load-up. He is a "tiger to work," "though I say it as shouldn't," and there being no horses available at the time, and the goods having to go to another farm four miles away, over a very hilly road, he packed them on to his bike and carried them. The load consisted of a wheel-barrow, ten yards of wire cloth, camp-kettle, hurricane lamp, Jumbo smoker, 14 lbs. nails, 5 lbs. galvan-

ized screws and washers; hammer, tomahawk, brace, and six bits; two hand-saws, food for two days, and a change of clothes. His working hours are from as soon as he can see until he can't. Needless to say, he is working for himself managing my Bathurst farms on shares.

S. Woodburn, N. S. W., Aus., Feb. 8.

[The following letter is from the "Hustler" himself.—Ed.]

AN AVERAGE OF OVER 200 POUNDS FOR 800 COLONIES

BY PHIL SHALLARD

On page 177, March 15, you say the Western honey-producers' annual output is 200,000 lbs. Are the crops in the States so small as to aggregate only this amount for an association, or is it a small association? One apiarist in this district took 201,600 lbs. for his biggest yield from between 800 and 900 colonies, and he never expects less than 112,000 lbs. These last two seasons have brought him down somewhat, though. Last season he took only something like 44,800 lbs., and so far as I know he has not extracted at all this season.

The best honey is worth from 6 to 8 cents here, according to the crops. It will average 7 cents, whereas your price is much higher, so that you could manage with smaller crops. This is for extracted honey. People here don't care for comb honey. They seem to think the wax will kill them, and consequently sections, 14 oz., are sold for 12 cents to 14 cents each retail.

The nearest approach to pollen that we can get is pea-flour. It is rather bitter to taste, but usually the bees take it well when natural pollen is scarce, and seem to do middling well on it.

Sac brood has made its appearance here. I had it in an out-apiary last season; and as I had never seen foul brood I at first mistook this for it. I had only two colonies affected last season; but this season there

are a dozen with it, so it's on the increase. I notice it only where the colonies are weak and poor honey-gatherers. It seems to come only in the fall of the season.

THE SMOKE METHOD OF INTRODUCING OLD IN AUSTRALIA.

On page 876, Dec. 15, you say a new method of introducing queens was brought to light by Arthur C. Miller. This method my father (Major Shallard) has been using ever since I can remember, and I was under the impression that every one knew of it. He also practiced smoking the colonies once a week with an ordinary smoker to cure paralysis; and although it never cured it, it used to steady the disease and keep it in a dormant state.

WATER MADE TROUBLE WHEN MOVING BEES.

I have read much about shipping bees without loss and keeping the brood in good order while in transit with water. Will you please explain how this is done? Fourteen months ago I moved 80 colonies 100 miles by rail. They were all two-story, and not very strong. They had a wire-gauze frame over the top of each colony, with a 5/8-inch space between it and the top-bars. The entrances were closed with wire gauze. They were packed one layer deep on the floors (which were covered with straw) of two louvre vans, and bags of straw jammed



Phil Shallard's substitute for an auto truck.

between the ends of the hives and the walls of the vans. The pick-up train took the two vans in tow at 1 A. M., and after going 60 miles it was 8:30 A. M. At this stop the assistant and myself gave the bees water by sprinkling it over the wire screens. The bees drank very greedily of it. We finished the journey by 12:30 P. M., and gave the bees more water. Owing to the lack of carriers the bees could not be unloaded and carted to the home farm till the second night of their arrival at the goods yard. They were watered once again before they left the vans. When the bees started to fly next morning they carted out one double handful, on an average, of dead bees. The weather was extremely hot, and the small black ants attacked a couple of the weakest colonies, and they swarmed out within two hours of when they started to fly. I did not know the ants were at them.

Last Christmas eve I moved 12 single stories on the same journey, but these had no water *en route* till they were unloaded into the goods-shed at 1 P. M. Then I sprinkled them with water and carted them that afternoon to the home apiary, 12 miles from the railway station. Next morning I looked to see how they had stood the trip, and found one colony with 90 per cent of the bees dead in it (this was the strongest, and had received the most water); and the meat-

ants (iron-stone ants) had paralyzed the rest. In the other 11 colonies I found a large percentage of the bees dead. I formed a good many nuclei last week, and filled one side of a drone comb with water for each of them. One nucleus seemed to generate a lot of heat in the hive, and the bees died. The combs and dead bees were all clammy and damp as though the hive had been filled with steam. The nuclei were all closed, and made bee-tight, so that the bees would not all return to the parent hive when released, and perhaps this caused one of them to suffocate. The heat this summer has been ranging to 106 degrees with hot winds. This climate is subject to very swift weather-changes. The altitude is somewhere about 2400 ft. above sea-level. There is no scrub, no clover, and no lucerne within range of 90 per cent of the apiarists here, and they must depend entirely on bush timber for the crop. When it comes drouthy weather they get but a small crop, and the last two seasons have been very hot and dry, so that not only myself but others have not extracted a single pound of honey. There is plenty of bloom, but no honey in it, and I guess it would puzzle almost any one to get a crop under these conditions.

Three years ago I moved 300 colonies for my father on the north coast, early in the spring, with a wagon and horses. These



This mammoth swarm was the product of one queen on 24 combs. The swarm issued June 11, 1913. From J. W. Davidson, Yorktown, Ind.

bees were all carted in the night, and the longest distance was 22 miles and the shortest 12 miles. Some of these colonies were sprinkled with water (not more than a small cupful), but those that did not receive any water I always noticed came through the best. In this instance, also, the bees seemed to have died through suffocation caused by the water, as they were clammy and damp.

Eglington, N. S. W., Feb. 10.

[We are of the opinion that you gave too much water. If the water is put directly on the screen it must be applied in the form of a fine spray so that it will not drench the bees, and not too much should be given at a time. We have tried all ways of supplying water, and like the cloth plan the best. That is, we roll a long cloth over the row of screened hives and sprinkle the cloth. The bees reach through the wire screen to get the moisture from the wet cloth.—ED.]

BEES GET HONEY FROM RED CLOVER WHEN IT IS DWARFED BY DROUTH

BY B. A. MANLY

On page 125, Feb. 15, Dr. Miller refers to the "red-clover strain of bees." From the little experience that I have had I am convinced that it is not the difference in bees that enables them to work on red clover, but a matter of weather conditions. In 1910 we had a summer in this State without rain. It was so dry in midsummer that most of the vegetation was dried up. The early honey-flow was fair, and then it seemed as if the bees had nothing to do. In August I was sick; and as I sat on the back porch I noticed the children would occasionally leave the honey-house door ajar. I warned them that they would find it full of bees. But the

bees did not come; and as I thought I knew that there was nothing for them to get in the field I could not understand it. Well, I walked down to the apiary on a day as hot and dry as it often gets to be, and to my surprise the bees were busy, giving no heed to any thing but their work, and they were all going in one direction, which happened to be toward my place of business—the lumber and grain office. The next day I went to the office; and while there I thought I would see if I could find any thing of these busy bees. Just beyond the lumber-shed was a forty-acre field of red clover.

The clover was badly dwarfed by the long-continued drouth; but the bloom was there, and literally covered with bees. The result of that season's work was 200 lbs. per colony (had no swarm) of as fine honey as I have ever seen.

Since then I have made close observation, and have not seen bees work on red clover except when the weather was very dry and

the clover badly dwarfed. For instance, the latter part of last summer was extremely dry, and we got a good crop of red-clover honey.

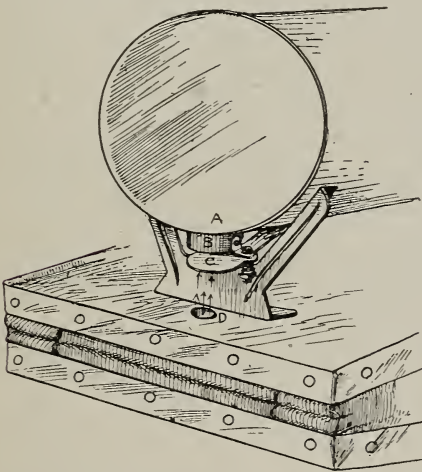
Now, from this experience I am convinced that it takes a dwarfed condition of red clover to make it possible for bees to reach the nectar in it.

Milo, Iowa.

A SELF-EXTINGUISHING SMOKER

BY F. C. MYER

This is a smoker which can be extinguished when through using by simply closing the blast-tube with a slide. This closes the lower part of the smoker; and as the fire generates carbon dioxide (this gas being heavier than air), it settles to the bottom around the fire and extinguishes it in about three minutes. The most inflammable material will smother very quickly, and without leaving a single spark when its air supply is shut off.



The closing apparatus is a simple iron slide about the size and thickness of a five-cent piece, and slides over the outer end of the blast-tube, working in the same way as the shut-off on a molasses-barrel or extractor. This arrangement will not clog up with soot or the like, and should be as lasting and serviceable as the rest of the smoker. It is not absolutely air-tight, and does not need to be so. When perfectly air-tight the fire is extinguished within one minute; but this is not necessary. If extinguished in several minutes it is quick enough, as the main part of the fire is out in a fraction of this time.

Usually when a smoker is put away without throwing out the fuel or putting it out, it will burn for several hours. This, when done time after time, will wear or rust out a tin-body smoker much quicker, and, besides, cause danger of fire. The saving of fuel also amounts to a good deal, as a person will often have only a few minutes' work with the smoker, or will have added a new lot of fuel just before quitting. It would be a waste to throw it away, and yet it is some trouble to take it out and carefully put out every last spark: and if every spark is not put out, it will likely be burning away full blast in half an hour.

During a rush, such as in extracting time, when through for the day and everybody is sticky and tired, a little convenience of this kind helps. This might be especially so for hired help, who will sometimes let things go rather than go to any extra trouble to be careful.

I have found the apparatus to be quick, safe, and economical, and a great convenience.

Lowell, Ark.

[We recall that several years ago one of the old-time smokers—possibly the Quinby—was equipped with a slide or damper to close the draft in order to put out the fire and save the fuel. The idea has some merit, for the charcoal, or unburnt fuel, thus retained in the smoker, is kept dry and in condition to light easily with a match the next time the smoker is used.]

As Mr. Myer suggested in his letter to us, any one may try the plan by inserting a cork in the blast-tube. It occurs to us that the use of a cork or plug attached to a leg of the smoker by a string a couple of inches long would be a very simple way to accomplish the same results. It would have the advantage of fitting rather more tightly than the slide, and would not take a great deal more time to put it in place than to turn the slide.—Ep.]

DIRECT INTRODUCTION OF QUEENS BY THE SMOKE PLAN

BY ARTHUR C. MILLER

The direct introduction of queens is the oldest method known. Introduction by caging is of comparatively recent origin, but by whom suggested I do not know. Various forms of each method have been used from time to time with different degrees of success, the cage plan prevailing probably because the manufacturers of mailing-cages sent them out with instructions for their use in introducing, and the average individual keeps to the beaten way.

Réaumur, I believe, was the first to describe a method of direct introduction, though probably not the first to use such. Little change was made in the direct method until Simmins brought out his fasting plan. Running queens into nuclei by using tobacco smoke was of about the same date, being particularly championed by Henry Alley, but not for use with full colonies. He used, advocated, and described cage plans for such. At the same time, tobacco smoke was urged for uniting bees, queen introduction, and for handling cross bees; but for the successful introducing of queens to full colonies it failed to fulfill expectations. Its use was based on a theory of odor, the tobacco being supposed to scent the queen and bees alike. How the odor theory originated is a mystery. Certainly no proof has been furnished that caged queens acquire any particular odor. It was affirmed and accepted that they did, and that apparently settled it: But *proof* is yet to be presented.

Even Mr. Simmins, in his successful method by fasting, could not free himself from the idea that odor is an important factor, for he emphasized the use of a fresh cage for each queen. Following his plan I introduced many queens, using a tubular wire-cloth cage and scalding it after use. That became tiresome, and I used it for several queens without such deodorizing, and found I was as successful as before, and after awhile I quite got over my belief in odor being a factor. But it was a good deal of a nuisance, having to be on hand at dusk to run in queens (Simmins' instructions), so I gradually dropped the plan, and used the cage plan with its varying results.

In conversation with Mr. Alley he was quite positive that it was the odor of the tobacco smoke which insured the safe introduction of virgin queens to his little nuclei, and it was to confine that smoke in the small hives that he plugged the entrance with a leaf, using such because over night it would wilt and release the bees in the morning without any thought on his part. Later I

learned that virgin queens were usually lost by their running out when not confined, rather than by trouble from the bees, so Mr. Alley's leaf rather than the tobacco odor was the reason for his success in introducing virgins to nuclei.

These and sundry other things again led me to try introducing queens by direct methods, and it was an easy step to combine the principles of Simmins' fasting plan and Alley's tobacco smoke and confining plan, and apply it to full colonies in the daytime. The fasting part got shortened to the point where it vanished, and plain smoke was used instead of tobacco. The fasting was a bother and "died from neglect," and not always having tobacco I used whatever fuel was handy (the tobacco was used because supposed to be more potent in subduing the bees); and so by degrees with many breaks, stops, and backward steps the present direct method of introduction by smoke and confinement was evolved.

This plan as now used is as follows: The entrance is reduced to about an inch with any convenient material, such as grass, leaves, rags, or blocks, and then a few (two to four) puffs of smoke are driven into the hive, and the last inch of the entrance is closed. The bees are soon "roaring" loudly. To the novice it may be well to explain that "roaring" is the loud hum of "distress" very different and much louder than any normal humming of the bees. As soon as they are roaring well the inch plug is removed, the queen is run in, followed by just enough smoke to hurry her along and keep the bees from running out and the entrance is plugged again. In a few minutes, usually five to ten, the small plug is removed and the bees are allowed to ventilate. The whole entrance is not opened at first, or a mass of the bees would rush out, and perhaps the queen with them, and at best it makes too much commotion. After the bees have ventilated and quieted down, the rest of the closing material is removed. This is the method in its simplest terms; but there are several modifying factors which, if understood in advance, will save bother and puzzling.

The first is the smoke. To one who is accustomed to using a large-sized smoker with good fuel, "two to four puffs" means one thing, while to the man with a small, poor, wheezy affair, and poor fuel, it is something else. To make the matter of smoke more plain, I took a good four-inch smoker, loaded it with old burlap, none too

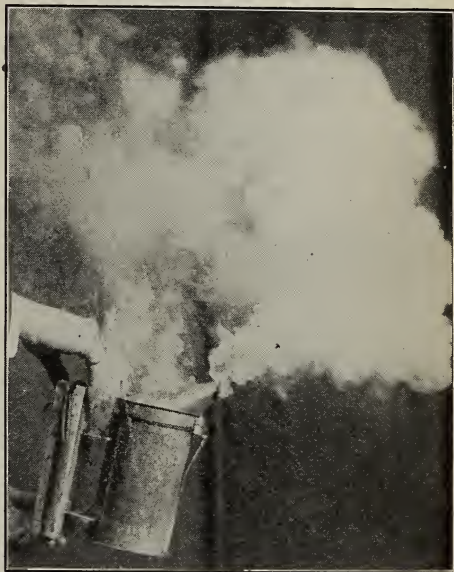
dry, got it going properly, and had it photographed. The illustration shows a cloud of soft, white, cool, but very "choky" smoke, and two to three puffs of such smoke driven well into the hive will make the biggest colony "roar"—not hard puffs like the one pictured, but sufficient to make it go well into the hive. There is rather more danger of giving too much smoke than too little. Dry, thin, hot smoke is likely to injure or burn the bees—often makes them quite cross, and does not work nearly as well as the other sort. In smoking the bees, if the entrance is but about $\frac{3}{8}$ inch high it is not easy to drive the smoke well into the hive; and in such cases it is well to lift the cover a little, send two or three puffs under it, close it quickly, and then give a couple of puffs at the entrance. For years I have used nothing less than an inch-high entrance; hence I previously failed to write of the difficulty of proper smoking where a small entrance was used.

The next factor is the colony condition. It makes no difference what that is so long as it is quiet. It may have a queen, have been just dequeened, have queen-cells in almost any stage, or have laying workers. The new queen will be accepted under any of these conditions. Under the first, she may or may not supplant the reigning queen. That is a separate matter, and will be treated more fully further on. Just after dequeening I consider to be the very best time for introducing, *provided* the dequeening was done quietly. With a good strain of bees the deft operator will readily get the old queen with little or no smoke, and when he closes the hive the bees are nearly as quiet as if they had not been disturbed; therefore they respond perfectly to smoking. Such is not the case, however, when a colony is searched through several times, heavily smoked, sifted, etc., as often occurs when looking for black queens, timid queens, small or imperfect ones, or with cross or nervous bees. It is impossible to get bees into the right condition for receiving the queen immediately after such an overhauling. To be sure, one can sometimes drop in a queen or place her on the combs while the hive is open, and the bees still in a turmoil immediately after removing the old queen, if the new queen is fresh from a neighboring hive. The safer way is to close such colonies and let them remain undisturbed until thoroughly quieted, usually about twelve hours, and then follow the prescribed plan.

Another factor of colony condition is food supply. I have found that some persons have tried to run in queens to colonies destitute of stores—robbed out. It can be

done, but is difficult. Give to such a comb of honey or a good feed of syrup, and reduce the entrance so the bees can protect themselves.

The presence of queen-cells is no hindrance except under the following conditions: When cells are about ready to hatch, perhaps the young queen already calling, a good honey-flow and hot, humid weather, then the advent of a queen, particularly if light in eggs, as after a trip in the mails, sometimes precipitates a swarm. That is exceptional, however, the cells usually being destroyed. A virgin escaping from a cell at about the time the queen is introduced may supersede the new queen, though that is rare. But it is not good policy to keep a colony queenless long enough for such conditions to arise.



A smoker in the proper condition, giving a good volume of thick, cool, smoke.

Laying workers are no bother at all when running in queens by the smoke plan, but as a rule a colony infested with laying workers is not worth giving a queen to. It is far better to set such on top of some other colony, giving the bees and queen of the latter the run of both stories for a week, and then separate the two parts, giving a queen to the part without one.

Introducing to nuclei in full-sized hives has not been entirely successful unless the bees were confined to that part of the hive where the combs were, so the queen on entering had to stay among them, and neither they nor she could wander off into the vacant space. I have not had any such

trouble, probably because all my combs are side to the entrance, and all nuclei or small colonies are kept at the front so that a queen on entering passes at once among the bees. Where the frames are the usual way it is probably good practice to use a tight-fitting division-board to restrict the space and then take pains to run the queen in right where the bees are. A tight-fitting division-board is something every beekeeper does not have. I know I have none, and it is not an easy thing to make in a hurry, nor unless one has just the right sort of lumber. But a perfectly satisfactory one may be quickly obtained in the following manner: Take a brood-frame with or without a comb, and wind about it a few times lengthwise a strip of burlap or other bulky cloth which is about as wide as the frame is deep. Push this into the hive, and it will meet all ordinary requirements.

With the smoke method of introduction any queen may be used, from a very young virgin to an old "breeder," and from a hive right at home, or from the mails after a trip half around the globe, but it is poor economy to put a virgin into a full colony. The queen may be put in at the entrance with one's fingers, or run in from the mailing-cage, together with the attendants. They will all be accepted. When running in from the cage, the latter should be placed wire side down or else have the wire well covered to exclude light; otherwise the bees of the

hive may rush into the cage, plugging it tight. I prefer to remove the card covering the wire and place the cage wire side down; then I can hurry the queen and bees out by a gentle whiff of smoke under the cage. Great caution must be exercised when smoking bees in a cage, for they cannot move away from it if it is a trifle too hot, nor successfully ventilate if a suffocating amount is blown in. Use only the most gentle whiffs. If the cage is dark the queen and bees usually pass very quickly into the hive, the commotion therein seeming to hasten their movements. Ordinarily when running in from a cage I push the cage into the entrance (wire down), plug any space which may be above or beside it, and let it alone until I am ready to give the colony its first small outlet. But as I want all queens clipped I usually release the queen indoors, catch and clip her, and then run her in from my hand or from any sort of cage or little box. If the cage has no hole in the ends, it will be necessary to make one with a knife, taking pains not to injure the queen. Do not make the mistake of pushing in the candy end of the cage. This has been done, strange as it may seem.

Providence, R. I.

To be continued

[In Mr. Miller's next contribution he discusses the reasons why the smoke method is successful, requeening without dequeening, etc.—ED.]

THE ENGLISH SEASON; EARLY THINGS EARLY AND THE SUMMER IN A RUSH

BY G. G. DESMOND

Apart from a rather slow January, and less winter brood than usual, we are having a phenomenally early season in England. Gooseberry blossom, due on the average on March 29, was ready to open on the 10th. Some cold winds checked it, but still it was nearly a fortnight early. Half way through April we got wonderful summer weather, and every thing seemed to come with a rush. The bush fruits were nearly finished, and we had laurel, cherry, plum, pear, apple, horse-chestnut (buckeye), dandelion, in the sort of procession you see at a well-contested horse-race.

With the old beekeepers, a May swarm was the *summum bonum*. This is the rhyme:

A swarm of bees in May
Is worth a load of hay.
A swarm of bees in June
Is worth a silver spoon.
A swarm of bees in July
Is not worth a butterfly.

Cottagers have been spinning yarns of April swarms for a great many years now, without much credence; but this year quite a number of beekeepers, ancient and modern, hived their increase from April 19 onward. I suppose that the date for an old straw hive to swarm is about the same as that of dandelion blossom. Last year we were picking dandelion heads for wine on May 21. This year, May 7 would have been too late, for all the heads had gone to seed.

Tickner Edwardes says that all honeys are outstripped in flavor by a blend of hawthorn and apple. "It is as rare and almost as priceless as the once famous Comet vintages. It is to be had only when the apple blossom and the hawthorn come into full flower together." This year we are having that, and, moreover, have got our bees up to supering strength in time for it. But then we have also at the same time hedge maple and

sycamore, and sycamore nectar is great in quantity and poor in quality.

However, some people will get their apple-hawthorn blend fairly pure; and if it is not well ripened on the hive they will be disappointed with it. At any rate, this medley of blossom is bringing stocks to booming strength for the clovers which will begin to yield before May is out. Sainfoin is the chief of them in some hill districts. The first blooms will be out by the 25th for certain, and that and white clover will crowd our main honey-flow into about six weeks. When June is out we shall be seeing the end of a very fine honey year. Lime (basswood) will have followed clover, and there will be no more definite flow for those who do not go to the moors for heather. But surely such a summer will have another surprise for us with some flood of second blossom. At any rate we shall be able to get our requeening done quite early, and get nuclei plumped up for the winter, and the benefit

of this unusual summer will not be exhausted for some years to come

The greatest benefit we look for is the removal of Isle-of-Wight disease. I think it is going out under this hot sun. It means almost more than we know who have had apiaries wiped out by the malady itself. Some brother experts have told me that they are astonished at the amount of foul brood that accompanies Isle-of-Wight. I suspect that foul brood has a close connection with it at all times. When a stock dies in the cellar or on its winter stand without any definite symptoms, that is very often due, as Dr. Zander has pointed out, to *Nosema apis* or Isle-of-Wight disease. Other stocks are no doubt weakened by the same malady, and it comes out as foul brood. Some such basal infirmity, if not this very *Nosema apis*, will have to be tackled by Americans as well as Europeans before they get rid of foul brood.

Sheepscombe, Stroud, Glos., Eng.

A 96-POUND AVERAGE FROM COTTON

BY S. W. BOSWELL

I am a "counter-hopper" salesman by trade, and my side lines have been bees, truck-growing, and chickens. This is my third year with bees; and as the A B C says

go into the honey business on the "tip-toe," I have followed its advice and have built up from two to twelve colonies. Next season I will branch a little.

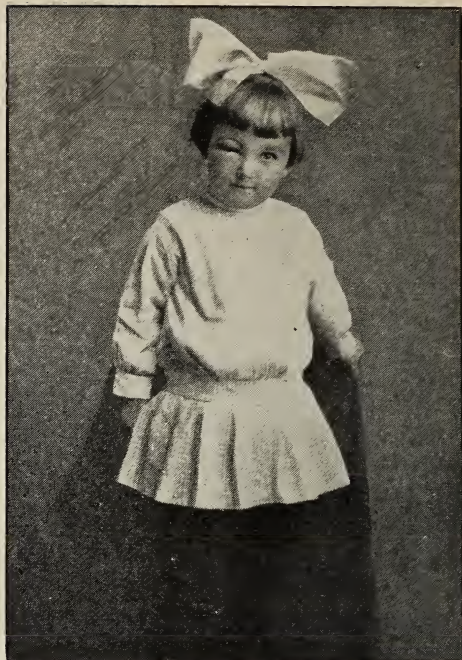


Some of S. W. Boswell's cotton honey.



Lucille Miller, "Before and after taking" (a sting). Lucille is three years old, and a great lover of bees. She has been stung a number of times, but doesn't get scared. She usually says, "Papa, look what the bees did to me." I have a large yard of bees, and she likes to see me work with them.

G. M. MILLER, Danvers, Ill.



There are 2400 acres under cultivation here, all cotton, so you will readily see that cotton is my honey-plant. Well, there are a few fruit-trees scattered around, and a little clover in places that the plow can't reach, that help out in early spring; but if any one were to ask from what source my bees get their nectar I would point with a proud finger to the millions of cotton-blooms.

From my twelve hives last season I took off an average of 96 lbs. of comb honey, and if I were to return all unfinished sections and apply the feeders I feel sure that my colony average would be considerably over 100 lbs. Now, I do not know; but it strikes

me that I have made my bees do pretty well, and the drouth we have had too was against me to a certain extent.

The Danzenbaker is the hive here for the production of comb honey. I have tried other makes, but they all slip a cog somewhere, though every thing is seemingly all right.

I am sending a picture of some of my honey. The picture was taken in June as a booster for Jefferson County, Ark. The strained honey in the picture is some I obtained from leaky and broken sections. The honey shows up a little too dark in the picture.

Corner Stone, Ark.

REQUEENING WITHOUT DEQUEENING

BY J. B. MERWIN

That Mr. J. E. Hand, p. 292, April 15, may not be misled in regard to my article on requeening without dequeening, p. 851, Dec. 1, I should like to try to make it a little plainer in some points. We do not try to introduce *virgin* queens by this method, and I have yet to learn of the old queen and the virgin queen fighting when reared by natural supersedure.

There is a similarity in nearly all things; and for example I will take a choice shade-tree in the latter part of summer when it is covered with a dense foliage. Nature has sent forth countless numbers of leaves; but wait until after the first frost, and they will begin falling—only a few at first each day, gradually increasing more and more until the tree is completely devoid of all its foli-

age, and, from all outward signs, appears dead. The next spring, should this same tree happen to be a little backward in sending out its buds we take it for granted something is wrong, and so with the point of our knife we raise a chip off the bark to see if it's not dead. If we are close observers we find a similar case of observations with our bees and their queens.

We will now take a strong colony of bees with a good prolific queen—one that has kept the hive well filled with brood throughout the summer, and at the end of the honey-flow we find the hive filled with brood and eggs. At this time the queen may be laying three or four thousand eggs per day; but now as the honey-flow draws to a close, and the bees bring in less honey each day, so the queen will begin to fall off in her egg-laying, and in a few days' time from her laying three or four thousand each day she will be laying perhaps two thousand and then one thousand, and only a few hundred eggs. Now, the bees observe this apparent failing of the queen, and about this time we happen along in our requeening manipulations and cage the queen for three days. What happens in that hive is now a guess. The egg production has been falling off each day more and more until now it has stopped abruptly, and those little workers come to the conclusion that there is something wrong, and start in to rear another queen. In my mind the age of the queen will have nothing to do in regard to their supersedure; and if friend Hand will try this out he will find it the rule and not an exception.

Prattsville, N. Y.

TWO FENCES ON EACH SIDE OF THE SUPER

BY CLARK W. WILSON

Two years ago I bought over 200 N section-frames for $1\frac{1}{2}$ -inch sections, and last season I used them. In a ten-frame super seven $1\frac{1}{2}$ -inch frames separated by fences is full capacity; and, in order to fill sufficiently the space, two extra fences have to be used—that is, two fences on each side between the outside wall and section-frame, making ten fences to a super. I find this arrangement produces a remarkable effect on the actions of the bees in finishing comb honey. In every super of clover honey the outside frames of sections are completely finished before the center combs are capped. The reason is easily seen on examination of the super so occupied, for the extra fence on each side makes more room for a double thick wall of clustering bees, and they get

in their work before the normal-spaced cluster. The finished sections average 14 ounces up to a full pound.

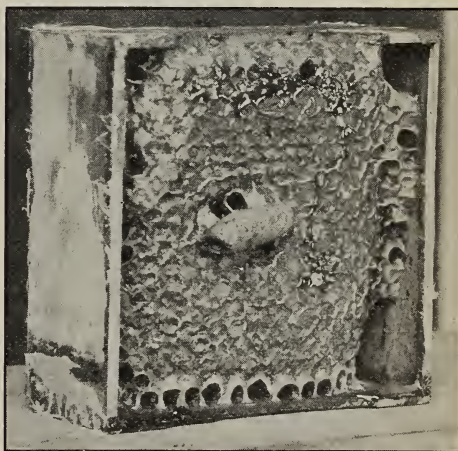
These sections and frames are unmistakably the best invention in this line on the market. The top-bar serves several good purposes. A most important one is that the sections are kept clean on all four sides, excepting, of course, the edges; second, the sections can be forced in together, and they stay "put" before and after the full sheets of foundation are fastened in by the wax-tube. The continuous use of a dozen blocks for three frames allows fast work with the tube; third, the frames can easily be used for chunk-honey production, which cannot be said of Danzenbaker section-frames.

Canastota, N. Y.

WASPS IN A COMB-HONEY SUPER

BY S. H. BURTON

I am sending you a peculiar-looking section of honey which you might photograph for GLEANINGS. If the cells are queen-cells, then the bees must have adopted a new material for queen-cell building, as the cells look more like the work of wasps. But I



Work of mud-wasp. This was the only section in the super that showed any such trouble.

hardly think the bees would allow such things in the super long enough to construct these cells. This was taken from a hive that yielded a crate of fall honey, and nothing peculiar was noticed with the rest of the sections.

Washington, Ind., Nov. 22.

[It is probable that the cell shown was built by a species of wasp which gets into the super during a time when the bees are not occupying it.—Ed.]

Heads of Grain from Different Fields



THE BACK-LOT BUZZER

There's one good thing about this system of government going on in any colony; th' police force is never just around the corner takin' a nap. When a great big good-natured bumblebee blunders into a hive, believe me, he comes out a changed bee.

Alfalfa in Kansas

When Mr. Root was in Kansas and saw alfalfa growing only on the bottoms, I am inclined to believe that he did not stop in the best part of Kansas. If he had come to the northeast and central part he would have seen alfalfa on the uplands, and almost none at all on the bottoms. The bottoms are given to corn here almost entirely, and the alfalfa grows and does finely on the highest lands. There are no streams larger than a spring branch nearer to me than 14 miles, and there are more than 100 acres of alfalfa within reach of my bees; but the trouble is, bees work on it but seldom. Many times I have seen fields purple with bloom, with hardly a bee to be seen. Occasionally I have seen a few bees working on it.

CATCHING STRAY SWARMS.

I should like to add a little to what I have read in GLEANINGS about catching bees. Last spring I set in the timber 20 old hives from which I had transferred bees. I had put in two full sheets of foundation with the rest of the frames fitted with inch starters. I put them in little patches of timber, and some in orchards where I had permission. I just put them on the ground or a rock or stump, with a good

lig stone on them. I put them out late in April and early in May, and by July I had 15 colonies.

I have a Ford car that I have had remodeled, taking off the back seat, and have a temporary rack behind so I can carry six or seven hives. I expect to catch more bees next summer, and have a whole lot of fun. I also got seven supers of honey from the 15 colonies caught.

Sabetha, Kan.

FRANK HILL.

An Easy Way to Catch the Queen

As my system of swarm prevention calls for finding the queen at a time when bees are somewhat numerous, we must have a quick and certain method for doing it if many colonies per day are to be treated. The queen at this time is restricted to the lowest brood-body, above which is a queen-excluder that will stay her majesty when we smoke in at the entrance and tap the back with a hive-tool. In about a minute remove supers and cloth *en masse* on to an empty super directly in the rear. This is practical for us by June 20 to 26, as supers are not as yet very heavy. The bees will continue to pour above the queen-excluder, and settle thereon; and while they are so doing, raise up the brood-body and place an extra excluder between it and the bottom-board. Now quickly take off the top excluder and examine the under side for the queen. We find half of them here. If she is not there, place an excluder before the entrance to hinder the flight of bees coming in. Then examine the combs, which will be nearly clear of bees; and we can count for certain that we shall see her on the lower excluder, especially if metal only, as bees will slip through to the under side. It can be done quicker than said.

Cayuga, Ont.

M. A. LISHMAN.

Ventilation in the Bottom-board

I should like to say a word about the ventilation of hives. I have come to believe that this is a very important matter, and one that has a great deal to do with the vigor and health of a colony. The entrance ought to be quite open, with wire cloth tacked along to make a small passage for the bees. Besides this a ventilating-hole in the bottom-board is a distinct advantage. It should be about three inches square, cut well toward the back, with wire cloth tacked over, and a wooden shutter made underneath.

The opening, which gives splendid ventilation, ought to remain open for seven or eight months of the year; and, furthermore, it helps the bees to keep the hive-bottom clean, for they drag the rubbish to the hole and push it through the wire cloth. One beekeeper, in 1912, told me that the only hives that kept free from foul brood in his apiary were those with extra-wide entrances and bottom ventilators, and he thinks this one of the chief factors in preventing swarms when running for comb honey.

Cheltenham, England.

A. H. BOWMAN.

Horizontal Queen-cell Production

I read with considerable interest Mr. Isaac Hopkins' contribution on p. 697, Nov. 1, 1912, on the subject of horizontal queen-cell production. I did not like the original method as described in the Aug. 1st issue of the same year, as it seemed to me too wasteful. I select a three-story hive, leave the queen and four or five frames of brood in the bottom (the hive having ten frames of brood), and put the rest of the brood in the second story over an excluder. In seven days I move the bottom box to a new stand; drop the second box with the brood on to a bottom-board, and put the comb on that in its rim, and put

the top story on that again. I do not cover any paper nor any thing else over the brood on the top side of the comb, which is standing on its tail, as I consider this one of the wasteful phases which I wish to avoid. Perhaps I am wrong in this. Like Dr. C. C. Miller, "I don't know."

Mr. Hopkins' previous article advised the use of a new comb. I tried this; but it sagged so badly that I lost a lot of the cells. Since then I have used a fairly old brown comb, and have also stayed it by wrapping wire around it.

I tried the system of scraping the intermediate rows out; but it took a lot of time, and I tried putting the comb on just as it was.

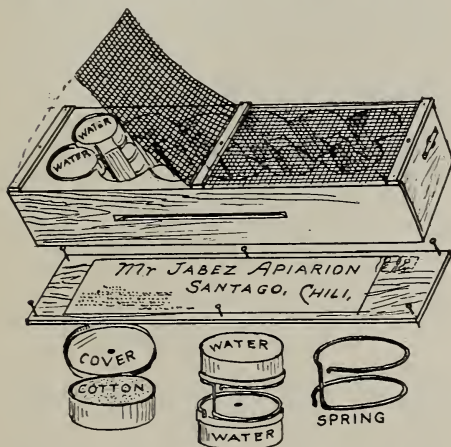
Perhaps this is not right, and perhaps I shall go back to the old system; but I have got from 25 to 30 cells on each comb, and I think that is satisfactory.

MAJOR SHALLARD.

South Woodburn, N. S. Wales, Australia.

A New Can for Holding Water in the Mailing-cage

We are sending under separate cover a sample of our long-distance cage with water-cans. We have had no trouble in keeping the cans sealed water-tight if a small amount of tallow is used with the wax. We have tried the tin tubes in the cages, but found on some of them it did not work unless the tube was made in separate sections so that in case the cage was standing on end while being sent through the mail the air would get in the other end, and the



water would all run out in a short time; so we went back to the little cans; for, no matter in what position the cage may be, the water will not run out; and, in fact, when it is filled it takes a hard smash to throw even a drop out.

We are all looking for the best plan to send water with our bees; and the only way I see is for every one to give his best ideas on the subject, as the best will surely have to use it.

San Jose, Cal., Mar. 11.

W. A. BARSTOW.

[The use of the little tin cans as here shown will be all right providing you can make them water-tight. We tried these to our satisfaction, using paraffine and beeswax to make a tight seal. But the trouble is, the bottles will do for a few trips; but when queens are sent out in quantities it will be found that they will leak. The only thing that we ever found effective is the tin tubes with corks fitting tightly. Just above the cork, which should be at the bottom, is a small perforation. Through this is a small string that acts as a wick. To overcome the objection of the bottle being wrong side up, we put in two bottles, one on each side of the cage, so that, no matter which way the cage stands, either side-

wise, endwise, or flatwise, there will be one perforation at the bottom, or where the bees can get at the water. So far this arrangement works the best of any thing we have tried. Small homeopathic bottles, with a slot in the cork, and a string in the slot, may be used. But there must be two bottles to the cage, and the ends reversed so that all the bees can get water at the slot in one of the bottles. Care must be taken not to make the slots in the corks too large. They should be no larger than will admit a common string without pinching it. Unless a string is used the water will leak out too fast.—Ed.]

What is to Blame for the Great Mortality of Queens Mailed in New Zealand?

I notice that you have gone back to the water-bottle for mailing queens. Since I started beekeeping some years ago I have spent money on imported queens, all of which have arrived dead. The last I got were posted to a ship's purser at San Francisco, and he kept them in his cabin and posted them on to me at Auckland. He wrote and said they ceased to show signs of life after they left Paapeete, where they had a few days of hot weather. Years ago beekeepers could depend on getting over 50 per cent of queens alive; but I think they had water in those days.

Mr. Isaac Hopkins, late Government Apiarist, is always putting the present-day mortality down to the fact that the larvae are transferred. I am tired now of sending money for dead queens. For the New Zealand post, to save delay, they should be marked "queen bee, not dutiable."

Dewauchelle, N. Z., Feb. 12.

W. B. BRAY.

[The loss in sending queens to New Zealand, we do not think, is any greater to-day than it was twenty years ago. Only a small percentage of the queens ever went through alive, and that percentage was and is so small as to be discouraging. We are in hopes, however, that the new water-bottle scheme as explained in the preceding footnote will solve the problem to a great extent. We hope to conduct some exhaustive experiments with water-bottles this summer, trying out some cheap queens or merely bees. But experience has proved that the candy must be soft, and that the water-bottles must be so constructed that they will not leak *en route*.—Ed.]

How and When I Make Use of Smoke

When I have to examine a hive thoroughly by taking out all the frames or to shake off the bees from combs, or to unite bees of two or more colonies early in the spring or late in the fall, I find it necessary to administer a few puffs of smoke from the top of the frames only. Using smoke from the entrance being unnecessarily distressing to the bees, I never do it.

During the honey season I do not make use of smoke, and often go without a veil. In midsummer, from July to September inclusive, when the temperature is high, say from 80 to 90 F., which differs little from that of the hive, the propolis turns soft, and the bees do not mind the exposure, and do not get irritated except when they are very roughly handled (manipulated), or under inconvenient circumstances such as robbing, etc.

Nicosia, Cyprus, Sept. 5. M. S. DERSVISHIAN.

[Ordinarily it is not necessary to use smoke at the entrance. A little puff over the tops of the frames during the middle hours of the day will be quite sufficient. If there is any occasion for opening hives on a chilly day in early morning or late in the evening, or at night, smoke should be used at the entrance, and a liberal amount over the tops of the frames. In fact, when one has to work with bees when it is a little dark he will find it necessary to use considerable smoke. Little and often is better than to use a large amount and then stop.—Ed.]

Swarming Bees that were Cross

About the last of August I had two very large swarms come off, and I never saw bees so cross. I used water to make them settle low, and they literally covered me while they were in the air, stinging with all their might. I had a very hard time to get them hived. I had to go into the woodshed three or four times to clean the bees off my body. I was stung about 20 times, as they crawled in every crevice in my clothing. What caused them to be so cross? They are Italians, and were working on buckwheat at the time.

Ossineke, Mich.

F. G. PENNELL.

[It is not common to find bees cross when swarming, for they are usually pretty well filled with honey so that they are not likely to be irritable. Occasionally, however, something happens to infuriate them, and then they will sting. At such times it is pretty hard to point to a definite cause.]

Possibly the bees of the parent colony from which the swarm issued were more irritable than others which you have. Several have reported, moreover, that bees are often pretty cross while working on buckwheat. Why they should be crosser then than at other times we do not know. If any robbing had been going on, or if the honey-flow had suddenly let up, the explanation would be simple.—ED.]

Foul Brood in Kentucky

The losses resulting from carelessness of indifferent beekeepers are the only ones of any consequence. Very heavy losses have occurred among those who had foul brood, and did not shake. This old-fogy idea that foul brood will not cause a great per cent of loss is absolutely absurd. Kentucky is badly in need of a law that will compel every man who has disease to get rid of it. Just so long as one man is permitted to have foul brood, every one near by will be more or less bothered by this deadly disease. Let us as beekeepers, in the absence of such a law, resolve to do all we can to eliminate this malady.

Brooksville, Ky., April 7.

L. F. RICE.

Sliding the Super Forward to Let the Bees Escape

On p. 309, April 15, Mr. Ewen wants his escape in the center of the board. I used an escape-board when the first dovetailed hives came out—just a plain board on top of the new super (or extracting-frames if extracting), then the honey-board, then the full super, then the cover. The bees escaped through an opening made by shoving the full super over the front end of the honey-board $\frac{1}{4}$ inch, or just enough room to let the bees pass out and down to the entrance of the hive. We put the boards on in the late afternoon or evening, and the next morning the full supers were clear of bees.

An opening through the front strip of the escape-board is all that is necessary. This method will not work if the bees can not all get inside. After escaping, if crowded for room, they will cluster on the front end of the hive, and keep possession of the full super.

Portland, Oregon.

CHARLES RUSK.

[During a honey-flow this plan will work, but robbers would take possession during a dearth.—ED.]

Bees that are Habitual Robbers are the Ones that Spread Foul Brood

I was interested in Mr. Doolittle's article, page 710, Oct. 15, 1913, as to desirable bee traits or natural characteristic qualities of different colonies; but he did not touch upon one vital point—*robbing*—which to me meant very much when it comes to handling American foul brood. Referring to the question of immunity from foul brood, it is the colonies that get right out in the fields that are immune, not the ones that are for ever pilfering and prying around at all the hive entrances. They are the ones

that continually keep spreading diseases. I would suggest that one or two decoy hives be set out with a few old combs in them, and bee-escapes turned in, so that in the evening the bees thus caught robbing can be sprinkled with flour to enable the beekeeper to tell what hive they came from. He should then mark such to have a "smoked-in queen" (by the way, that trick is worth dollars).

The black bees are natural robbers, and that is the reason why they are so hard to handle when foul brood gets a start. Some individual colonies of any races are natural robbers, just as in the human family. Breed from the hives that get right out into the fields, and show results in the hive, and add all the other good traits Mr. Doolittle speaks of.

Colo, Iowa, Jan. 1.

D. E. LHOMMEDIEU.

Brood-comb Clogged with Honey Before the Main Honey-flow

Complying with Dr. Miller's wish, p. 244, April 1, I will say that supers were on. Some of them had a few bait sections; some two, some four, etc. These bait sections were filled in the strong colonies the same as were the frames in the brood-chamber. In the weaker colonies they were untouched.

Our location provides a long period of warm weather from Feb. 15 to June 15, during which time there are intermittent sources of nectar, beginning with willow, then fruit-bloom, followed by some varieties of sage. The altitude is high (4800 ft.) and dry, with an almost cloudless sky. This dryness shortens the time that the sage bloom is in its prime or nectar-producing stage, and, moreover, the flow is not continuous enough for comb-building in sections, but increases as the season advances, so that the brood-chamber becomes clogged. Some of these frames are fully capped 15 days before alfalfa.

This year the brood-rearing started two weeks earlier. There will be but very little if any old honey left in any of the brood-chambers, and all colonies are strong in young bees.

Were it not for the abundant stores from last fall, we would have had to feed at this time. I have planned to have new combs drawn from full sheets during the time the clogging takes place this year by inserting foundation between brood.

Bishop, Cal.

GEO. M. HUNTINGTON.

Queen Goes to Another Hive

I once introduced a breeding queen to a small colony. She did finely for about four weeks, when she suddenly disappeared and the colony refused to build cells, even to rear themselves a queen. In about three weeks I saw the same kind of bees flying from another hive two hives from there, and on examining it I found that breeding queen doing good work. Has any one else ever had such an experience?

Clarkston, Mich.

W. L. LOVEJOY.

Honey 40 Cents per Gallon in Jamaica

It is to be regretted that honey has fallen so low in price this season; 40 cents per gallon for white and 30 cents for amber is the best price offered. Many beekeepers just let the honey remain in the hives for the bees to consume. Up to last year honey was eagerly bought up at from 70 to 75 cents per gallon.

F. A. HOOPER.

Four Paths, Clarendon, Jamaica, April 20.

Death of Josiah Eastburn

I am sorry to inform you of the death of Mr. Josiah Eastburn, proprietor of the Locust Grove Apiary, Fallsington, Pa. Mr. Eastburn was the leading authority on apiculture in Bucks County, where he was engaged in apiculture for about 30 years. He was a man of upright character. His widow survives him.

Elizabeth, N. J., June 3.

E. E. GUY.

A. I. Root

OUR HOMES

Editor

Honor thy father and mother; which is the first commandment with promise; that it may be well with thee, and that thou mayest live long on the earth.—Eph. 6:2, 3.

I hold in my hand a book of 480 pages. The title is, "Old Age Deferred," by Arnold Lorand, Physician to the Baths, Carlsbad, Austria. The book is published by the F. A. Davis Co., Philadelphia. The price is \$2.50 net. Dr. Lorand is evidently in close touch with the most prominent physicians and scientists of the present day. The book contains much that is very good; and I am glad to see that it is very closely in line with Terry, Fletcher, and others who have been teaching us forcibly the advantage of less eating and of a thorough chewing of all we do eat. I cannot take the time just now in this Home paper to make a résumé of the book. On almost every page, the author speaks of the harmfulness of alcohol, tobacco, tea, and coffee (the book is just out, the date being 1914); but notwithstanding all this, the author closes up his chapter headed "Deleterious Action of Alcohol," as follows:

But we again repeat that there is not sufficient strictly scientific evidence as yet, to prove that small quantities of alcohol (especially beer or wine, and possibly whisky) are deleterious to the majority of adults; those who cannot stand even small quantities will be best without any; but we fail to see why a working man, when he comes from his daily labor, should be forbidden to take his glass of beer.

Then, again, in the chapter on tea, coffee, and tobacco, he closes up by saying:

We do not think that two or three light cigars a day, but never before meals, can do any harm, save in exceptional cases.

To my mind it is not only lamentable but astonishing that a man of his experience and broad education in regard to almost every disease known should be so stupid (begging pardon) as to forget or ignore the fact that moderate users of both liquor and tobacco almost invariably become inveterate users before they die. Why, the great distilling companies—at least two of them—recognize this so fully that they propose to sell a list of the names of their patrons to a Keeley-cure institute with the remark that, sooner or later, their customers (moderate users, of course) will become patients at the Keeley institute.

The author of this book admits in his writings that he is not a married man. I may be a little peculiar; but to my notion, no doctor is fully qualified to advise and treat husbands and wives until he is a married man himself. Perhaps I had better modify it by saying that any doctor 25 years old should be a married man; and, God

permitting, he should have some children—say four or five, or, better still, half a dozen; then he will know how, *by personal experience*, to take charge of both husbands and wives. I would suggest, also, that his wife study medicine, and go with him a good deal, especially when he has women patients. He had better have his office so close to his home that the good wife can be called in at almost any minute.* Now, Dr. Lorand tells us he is not married. I wish he might be equally frank with his readers and tell them whether he uses tobacco, and, say, a glass of beer occasionally that he recommends to the "workingman." I suppose he would class me among the "faddists," especially when I say the family physician should use neither alcoholic drinks nor tobacco. Most surely the doctor who sees the evils of tobacco and drink, as this man does, and talks about its effects, not only on the present generation but on the generation to come—surely such a man should be able to come before his patrons and say, "I practice what I preach," or, in other words, "I, your family physician, take my own medicine, or the medicine that I daily use."

This good doctor is frank enough to declare that the man who asks a woman to take him for better or for worse should be able to show her a certificate from a good physician in regard to his habits, and freedom from disease. Just recently I heard the agent of an insurance company say that every young man when he asks a woman to have him should be able to show the good lady an insurance policy on his life. This would be valuable for her for two reasons: First, because he is wise enough to have something laid up for a rainy day; and, secondly, that the insurance doctor or physician employed by the insurance company has made a thorough examination, and guarantees that there is no disease about him that might pollute her own pure self. Now, do not call it another of my cranky ideas if I suggest that this good man shall also be able to tell her he is a member in good standing in some church. So much for a preface to what I have been moved to say to old people like Mrs. Root and myself.

So far, may God be praised, Mrs. Root and I have been able to take care of ourselves, and occasionally, too (thank God), to help a little in the care of the children

* By the way, in my opinion every minister of the gospel, as soon as he is of proper age, should also have a wife, and, a kind Providence permitting, children also. If he is to tackle the sins and crimes that afflict humanity, he should be a parent in order that he may speak from the father's standpoint.

and grandchildren. But the question is coming and creeping upon us day by day, "What shall we do should the great Father permit us to remain here long enough till somebody has to care for us?" While this matter is in my mind I keep thinking of Jesus' words to Peter. Let me quote:

When thou wast young, thou girdedst thyself, and walkedst whither thou wouldst; but when thou shalt be old, thou shalt stretch forth thy hands, and another shall gird thee, and carry thee whither thou wouldst not.

When we get so old as to be in some respects a burden to our good and devoted children (two boys and three girls) are we going to be a *trouble* and a *worry* to them? Shall we become cross and cranky because we cannot have every thing just *exactly* our own way? How many of you whose eyes are resting on this page have thought of that? Look about you and see. Consider the old people whom God has permitted to be perhaps eighty or even ninety years old. Are they usually, all of them, still a blessing to the world? Are they helping along the great wave of progress toward God's kingdom? Old people have notions—queer notions. I feel it coming on me already. They get to be deaf, like myself. It is not only a task to make them hear but to make them understand; and they are forgetful. You have to tell them things over and over. Saddest of all, they sometimes lose their mind, and become idiotic or imbecile. I have talked, perhaps, in a joking way about living to be a hundred years old; but I am hoping and praying and *striving* to avoid any thing that might lead me to be a burden on society or on my friends and relatives.

The question has come up half a dozen times quite recently as to what shall be done with old people as they become helpless and hard to take care of. Shall they be sent to the county infirmary? Years ago we could hire a man or woman at a reasonable price to stay with such old people; but it is a far more difficult matter now. Suppose some old father or mother, or father-in-law or mother-in-law, becomes a burden on some good woman who already has a family. Shall she wear herself out and go down to a premature grave just because the family or the people are too proud to let the old lady or the old man be cared for by the county, or, say, at some "old ladies' home"? I am not going to answer this question. The old ladies' homes have done wonderful things, to my knowledge, in taking good care of old ladies during their declining years.

There is one point I did not touch on as I intended to. Suppose this old mother does not recognize a single one of her children

or grandchildren. Suppose she keeps saying over and over, "I want to go home; I want to go home." Suppose, if she is not watched every minute, she will get away so the whole neighborhood has to turn in and hunt her up. If she does not know any of her friends or relatives at all, would she not be just as happy and contented—perhaps more so—in an old ladies' home where she could have the care of experienced and well-known trained nurses? But, hold on a bit. There is another side to this. The papers tell us of hired help in these asylums for old people who have not only been guilty of abusive language but even of blows and kicks and bruises because these old friends have queer and unreasonable notions.

Our text says: "Honor thy father and thy mother." We have just been talking about living to a good old age; and God's holy book tells us one of the *requirements* for longevity is to honor our father and mother; and I take it that it means other people's fathers and mothers as well as our own. What are we going to do with *all* the fathers and mothers? What *are* we doing with them? What *will* be done with them? I said to myself recently, "A. I. Root, what are *you* going to do when you get to be too old to take care of yourself? What are you going to do when the good wife gets to be too old, or when God has taken her away so that she can no longer spend her life and strength in anticipating your every want?" May God help us, when that time comes, to practice what we preach. I will tell you one thing I think I shall want; and that is, a garden and some chickens, just as long as I am able to work in the garden with a light little hoe. Right near the garden, and adjoining it I want a comfortable place to take my nap. In fact, I have such a garden and such a place to sleep already. When it is too cool I have a little "sun parlor" where I can lie down in the sun.* When it is too warm in the sun parlor I have a cot in a cool basement just back of the sun parlor. So you see when I am chilly I can lie down in the warm room. When the weather is oppressively warm I have a cool retreat. Mrs. Root fixed the cool sleeping-place for me yesterday, June 8, for it was 94 in the shade a good part of the day.

Now, elderly people are apt to get untidy.

* By the way, let me tell you that I never go into that sun parlor or cooler room unless I am tired out from muscular work in the garden, or with letters and correspondence in the office. I make it a point never to think of taking a nap because I have nothing to do or because I feel "lazy." My naps are taken when I am pretty well tired out and *need* rest; and it is certainly a benefit to me to take a little rest before I sit down to dinner. Sometimes when business calls I eat a meal when pretty well tired out, because there is no time for napping; but it does not do me nearly as much good.

Yesterday I happened to meet a man who pretty much all his life had been the pink of neatness. He is now over 80 years old. I was surprised to see some spots on his clothing that I think were made by dropping his food. Then I glanced down at my own vest and pants; and (I am sorry to say it) there were some stains there also. A spotless clean napkin is by my plate at every meal. By the way, perhaps I might confess that one reason why it is so "spotlessly clean" is because I do not use it. I am either too busy or else I forget; but I am going to try hard from this day on to use that napkin and keep my clothing clean in other ways, so I shall not worry the good wife. Old men are very apt to become careless. They neglect going to the barber's. Did you ever notice how much neater and brighter some old gentleman looks after an expert barber has fixed him up? Well, I have decided I must go to the barber's oftener. I will try to use that good-sized nice clean napkin, and wash my hands more frequently, and I will spend more time in cleaning my feet after I have been out in the muddy garden. I will use the broom that stands by the doorway of my sun parlor oftener so as to save the dear wife the trouble of following after me. I will try to have my places of work more decent and in order than I have done. If by some blunder or mishap the children or grandchildren make a mess of my work I will try to avoid complaining.

There is a bright sweet "little toddler" who especially likes to share my apples and grapefruit at about five o'clock every afternoon, and lately she is quite fond of being with me out in the garden; but she seems almost sure to put her little chubby foot on a sesame plant or a fall-bearing strawberry that I am trying to nurse back to life. Shall I go and tell "Carrie Belle" that I can not have her little girl blundering around in my garden? God forbid. I will tell you what I am going to try to do. Perhaps I have done it already. I have said out loud, "May the Lord be praised for the brightness that Carrie Belle has already shed over my life since God gave her to us; and may the Lord be praised that this bright little prattler, another edition of Carrie Belle, has learned to love—perhaps just a little—the cranky old grandpa, even if he does scold her sometimes for stepping on his precious plants." Does not that beautiful little text fit in right here—"Ye are of more value than many sparrows"?

Now, dear friends, all of you who think that you are growing old, and perhaps have been afraid you might be a burden sometimes on the younger and busy world, shall

we not, each and all of us, try a little harder to hold fast to the Bible promises? Shall we not try a little harder to be *easy* to get along with—easier to *let go* of old things and to take up with new things? Shall we not be more careful about criticising the younger ones who make so much of baseball games, summer outings, county fairs, Fourth of July, possibly circuses and animal shows—things we no longer care for? Of course, it is not incumbent on us to go to these great gatherings unless we choose; but let us try to learn wisdom from the past.

The book I have spoken about—"Old Age Deferred"—puts strong emphasis on the importance of eating sparingly when you are obliged to give up severe manual labor; and it agrees almost exactly with Terry in saying that old people who have given up heavy bodily labor should eat but little meat or none at all. Dr. Lorand recommends milk very strongly for old people, as it is ready for the stomach and bowels without being obliged to chew it "everlastingly;" and I do think many old people would not only live longer but hold their powers much better if they would eat only two hearty meals a day, and, say, apples or some fruit that seems to agree with them for a light supper.

Now, once more, who is there among you who is not only going to strive for a good old age, if God so wills it, and at the same time hold our reasoning powers, and, above all, *our religion*, so that we may be of *some use* to the world instead of a hindrance, up to the last?

Just recently I spoke of the boy who came so near drowning, and said that, if he grew up to be a cigarette fiend or a victim of intemperance, saving him from drowning would amount to but little or nothing. In fact, he had better have died an honest and innocent boy rather than to have become a criminal. Let us now apply this same reasoning to old age. We are talking about living to be a hundred years old; but, seriously, what is the use or what does it amount to if we keep on living a life of uselessness or imbecility—a burden to our relatives and to the public? God forbid that I should teach or insist on any thing of the kind. We had better be dead and out of the way than to live a life of useless self-indulgence. But, may God be praised that we have quite a number of examples of old men and women who have been a blessing to the world, even to the last moment of a good ripe old age. I would suggest Benjamin Franklin, 84; W. E. Gladstone, 89; Cornaro, who wrote a valuable book when he was ninety years old. Terry has been particularly strong in

this matter. In fact, the title of his book is, "How to Keep Well and Live Long." If we keep well as long as we do live, we shall certainly be of some use to the younger generation. How often have I seen an old grandmother who interested the children and looked after them in such a way that, when God took her, she was missed most keenly by every member of the household, even though she may have passed her four-score!

After the above was put in type I sent a proof to my friend T. B. Terry, and offered to send him the book if he had not already seen it. Below is his reply:

Dear Mr. Root:—I haven't seen the book you refer to, "Old Age Deferred." When you are through with your copy I certainly shall be glad to get it. But, as I understand from your article, Dr. Lorand allows a moderate use of liquor and tobacco; and I have very little confidence in any man's teachings who takes such a stand. With such, to be popular is more than to be strictly truthful and helpful to humanity. Of course, one can get some good thoughts from such writers; but, you see, one does not dare accept any thing they say as true which he does not know himself is so.

Friend Root, I do not believe for an instant that God intended we should be helpless or lose any of our faculties in our old age. I do believe that we bring all such so-called old-age infirmities on ourselves by wrong habits of life. They are punishments for natural laws violated. The older I get, the more I study and experiment, the more certain I am of being right. Ten years ago it would hardly have done to say this. But the world is waking up to the truth at last.

Mr. Root, I do not believe you half realize how much good your articles are doing. I always like to get the views of an outside friend. So let me give you mine by saying you are doing better work than you could 20 years ago. And why not? You have had more experience, your business cares are less, and your head is as clear, thanks to right living. Ten years from now your writings will be worth more to humanity than they are now.

I have now had a four-weeks' vacation and "let-up," and outdoor work, for the first time in 25 years. Really it does seem as though I felt better now than when I was 40. I hope you and your good wife are feeling as young and vigorous as I do—yes, more so.

Hudson, O., June 17.

T. B. TERRY.

Dear friends, I have received many kind words—in fact, many kind and encouraging words are coming every day; and I frequently say to Mrs. Root, "Sue, I have had a letter to-day more encouraging than any heretofore:" and I think I can say the same in regard to the closing sentence to friend Terry's letter. May God give me grace and physical strength and inspiration to continue finding something helpful to all our readers, young and old, for ten years to come.

ville, Ohio, during his temperance talks, read us a "love-letter" from one who had been formerly a saloon-keeper; but after his conversion to the Lord Jesus Christ he turned and wrote a *love-letter* to the man whom he used to fight. Well, I have received a love-letter too; but it comes from a friend, and one who has always been my friend, so far as I know. Here it is:

Dear Mr. Root:—

"I lang hae thought, my youthfu' friend,
A something to have sent you,
Tho' it should serve nae ither end
Than just a kind memento;
But how the subject theme may gang,
Let time and chance determine;
Perhaps it may turn out a sang,
Perhaps turn out a sermon."

I love you, Mr. Root. I have been acquainted with you for only about five years; but from the first number of GLEANINGS that I received, began an affection that has increased with the years, and bids fair to last until you reach that hundred-year mark that you have set for yourself. The beautiful simplicity of your life appeals to me, and shows that you give the Lord not only lip service but also heart service.

For eight years I was a salesman for a wholesale grocery house in Atlanta, and left them only last January to go into the grocery business for myself. Kirkwood is a suburb of Atlanta, being only four miles from the city.

For the past five or six years I have been interested in bees, and have studied them pretty thoroughly. They are intensely interesting to me; but since I am now in business for myself, and am closely confined, I have not the time to give them. From reading Mr. Frank Benton's writings, I became interested in the Carniolans, and have kept them and their crosses with Italians. I much prefer the Carniolans, as they are gentler, have a large force of bees early in the spring, and don't stick up the hives as the Italians do. They do not swarm any worse for me either, in spite of their reputation to the contrary.

I run for extracted honey. I have only seven hives, and not the time now to give even that number the proper attention, and I have had only two swarms this year. I hived both right back in the old stand after raising the brood-chamber over the second story, and putting an extra set of combs in its place. Of course, I cut out the cells, and they went to work with a vini.

There was a plot of red clover about fifty feet square near my home, and I was surprised to see my bees hard at work on the blossoms. I thought that it is very unusual for bees to work on red clover.

I have a Novice extractor, but I have never learned to use it without breaking the combs. I use wired foundation; but even combs three or four years old break in the extractor. I am now selling the honey in my store at 17½ cts. per pound for bulk comb, and I get 25 cents for a pint jar of extracted. The firm for which I sold groceries for eight years handle Wilder's honey in the pint jars, and I had lots of experience with it. Privately, in spite of his plan of exposure to the sunlight, it granulates badly, and I have bought many a case of 12-pint jars from retail grocers for \$1.50 after they had paid \$2.60 per case for it.

I carried five colonies and two three-frame nuclei through the past winter. The five were chock full of goldenrod honey, and had a big force of bees all ready to go to work in the spring. I have taken about 150 pounds of bulk comb and extracted already, and have not touched several of the supers. The honey is from poplar, locust, blackberry, daisy, and fruit. It is dark, but it is very finely flavored,

A LOVE-LETTER FROM ONE OF OUR SUBSCRIBERS

Some time ago (p. 473, July 1, 1913) I mentioned that one of our Anti-saloon League workers, Mayor White, of Barnes-

and all say it tastes like the "honey father used to make." The past two years are the only years that have given me any surplus; but I think that I, like most beginners, monkeyed with the bees too much, and did not give them any time to make honey. I find that the more I leave them alone, within certain limits, of course, the better they do.

Last month I set some perfectly fresh Indian Runner duck eggs under a hen. In three weeks one little duckling hatched, and one week later the other eggs hatched. How would you account for that one? It is a freak of nature. The little fellow seemed perfect; but as I had no way to keep just one, I gave him to a boy.

Like you, Mr. Root, I believe in simplicity of diet. Honey is the only sweet I eat, and I eat very little of that. Two meals a day are enough for me, and there are very few things in my store that I eat myself. A little fruit and vegetables are enough for me with graham bread and corn muffins. Unlike Terry, I find vegetables are better for me than fruit. Acid fruits are not at all good for me.

When I was 25 years old I was superintendent of a cotton-mill, and a fit candidate for a consumptive's grave. In fact, I had to give up my work and live in the open air. I began to study the question of diet and proper living generally, and now at the age of 33 I am strong and ruddy, and have not taken a dose of medicine in years. Light eating, freedom from constipation, and fresh air, have done the work. I sleep out of doors every night in the year. I believe that diet is the most important question before the people to-day. Diet has a great influence on the morals and also on the religion of the people as well as on their bodies. I believe that it is possible to live so that there will be no sickness or bad feelings. But if sickness begins to come on, a full enema once a day for several days, and about a two or three days' diet, with lots of pure water, will generally forestall the doctor.

As I said before, Mr. Root, I love you. I love the work you are doing. I am with you in spirit in all you do for the betterment of the people. I am "agin" the liquor interests and the patent medicines and the quacks and the nostrums. I am with you in your efforts to let the light shine in the midst of the darkness in which such a large part of us live. I pray that you may live long, and that you may continue to "turn on the light." It would be a great pleasure to me to know you personally.

Kirkwood, Ga., June 3.

HAL RIVIERE.

In regard to honey in pint jars containing a piece of comb honey, our people have given up putting comb honey into jars or tumblers. I rather protested; but our "honey-man," Mr. L. W. Boyden, declared that after the honey candied nobody would buy it, and there is no way of restoring it to its original shape. I know friend Wilder has been putting up and selling not only tons but carloads of honey in this shape. I talked with him about it not long ago; but he said that in the Southern States, where there is seldom or never any freezing weather, there is but very little trouble. I am surprised to learn that your extractor breaks the combs when they are properly wired. If they are filled very heavy with thick honey I would throw out a part of the honey and then reverse and take the other side. This, of course, takes some time, but it usually prevents injury to the combs.

In regard to the one duck hatching in three weeks, that one egg must have been sat on by some accident, or exposed to heat enough for about a week to cause the germ to start. During the past winter I gave a Leghorn hen 15 eggs. Not an egg had hatched at the end of 21 days; but as the egg-tester showed live chicks I let her keep on. She hatched six chickens in just about 26 days, and might have hatched more of I had not got tired of waiting, and "broke her up." I have never been able to account for this.

My good friend, some of our readers will smile when you tell us you eat very little of the things *you have for sale*. It reminds us of the doctor who would not take his own medicine when he got sick. I rejoice to know that you are getting your health without doctors or drugs, and extend my sincere thanks for your very kind words; but I wish to add, my dear brother, that I hope it is the Christlike spirit I have faintly shown that you "love," rather than my poor self; and may God help us all to show forth at *all times* that spirit of peace and good will that ought to "shine forth" from the face of each one of us.

OUT OF HEATHEN DARKNESS AND INTO THE LIGHT OF THE GOSPEL.

The following should be read because it comes from a son of the late D. L. Moody.

Dear Mr. Root:—As you have given to the Northfield Schools during the past season, I am taking the liberty of writing to report upon the work of the current year, and trust that you will not view this as in any sense an appeal.

In September the Northfield Schools opened with the largest attendance in their history, aggregating 1250. About 200 were new students, and those had been selected from nearly a thousand applicants, the choice being based upon need and merit. The result has been an exceptionally earnest, purposeful class of young people, and I have never before realized so much as during the recent months the privilege which is given to us here in ministering to young men and young women of this class.

It would be a great joy to us to be able to share with our friends who are making Northfield possible many of the individual experiences which we have with our students. To know of the struggles and privations which some of our young people have experienced to come to Northfield; to watch with interest the development into efficient and promising students of those who have had few opportunities; and then to know of their going into the world imbued with high ideals and carrying the traditions of Northfield with them, is a pleasure which we should be glad to share with our many friends.

Of our graduates at Mount Hermon last spring one is a man who gives promise of a great career among his people. He is a Liberian, having received his early education in the Methodist Mission in Monrovia, where his gifts were recognized. Later he came to Mount Hermon, where he won a high standing for scholarship. One of his teachers assured me that he had the best mind of any student that he had

ever taught. This testimony was of greater value as it came from one who has been teaching for many years. The student took prizes in chemistry and physics, and gave his commencement address in Latin. He is now a freshman in Harvard University. His career is the more remarkable in view of the fact that, twelve years ago, he was uncivilized in the jungles of Africa, and in this short time has accomplished so much. His earnest purpose is to return to

his own people, and during holidays he has been working upon his native lingo, reducing it to written form, and, with the assistance of a teacher, translating from the Greek Testament into this language all of the parables of our Lord, and the first few chapters of the gospel of St. John. This is one of many cases for which it is our privilege to work at Northfield.

Sincerely yours,

East Northfield, Mass., Dec. 25. W. R. MOODY.

HIGH-PRESSURE GARDENING

NEW POTATOES AT 60 CENTS A PECK.

The above is the price we pay at our grocery here in Medina for new Red Triumphs—the same kind that I grew down in Florida, and these were *probably* shipped in from Florida or some of the Southern States. But even at 60 cents a peck they were not first-class. They were all rather small, and some of them quite small, and quite a few of them were imperfect. A year ago I talked to you about growing a few potatoes in your back yard so as to avoid being obliged to pay the extravagant prices that generally rule in June. When I got back from Florida the first thing I did was to plant some potatoes; but just as it has often happened before, I could not get seed of the Red Triumph. In fact, I could not get any seed of early potatoes of any sort, with the exception of one seedsman in our town who had a few potatoes that were brought in by some countryman who called them Early Ohio; but the seedsman was frank enough to say he did not believe they were true to name. I planted some of these at once; but as my ground was not in proper condition they are now, June 13, only just showing blossom-buds. Some of you may say that if we try to grow a few extra-early potatoes in the back yard it may *cost* us 60 cents a peck; but I am sure it need not. As a proof, a good neighbor of mine, Mr. M. D. Kimmell, just a few minutes ago said if I would go down and take a look at his garden he would give me a nice mess of new potatoes. He said they were Burpee's Extra Early.

Now wake up, friends, you who love to make garden, especially quite early in the spring, and who also love short cuts between producer and consumer; turn in and help *me* practice what I preach. Terry has finally decided potatoes to be the most wholesome vegetable; in fact, it comes next to home-ground wheat. I think potatoes and wheat of our own growing, and home *grinding* of the wheat, may be a large factor in attaining an age of a hundred years, and a fair use of all our faculties.

Later.—After the above was put in type

I came across the following in the Jacksonville *Times-Union*:

Within a period of ten days St. John's County shipped 1200 cars of Irish potatoes, and then some people wonder if there is any thing in farming in Florida.

Sure enough! The above comes in nicely with people who are inclined to run down Florida. Just think of it! 1200 carloads shipped from one single county, and that in a period of only ten days! Good for Florida!

BUGS ON SQUASHES, ETC.

On Sunday morning, June 7, although I was out just about sunrise, I found a swarm of little striped squash-bugs had pretty nearly riddled my thrifty Hubbard squashes that I started in the hot-bed. They were just swarming over the dozen hills. I did not look around for any covering or screen, but caught the bugs, as far as I could, before they flew away, and mashed them between my thumb and fingers, letting them drop all around the ground. Then I went to the next hill and did the same thing. By the time I reached the last of the dozen hills there were more on the first hill, and I kept on until Mrs. Root called me to breakfast. Now, even though it was Sunday, I decided I could not have my squashes all ruined that way; and I spent quite a little time in getting some boxes to put around each hill. I did not have boxes enough, so there were several hills uncovered. My conscience troubled me a little, I admit, because of what looked so much like work on Sunday; but I thought the circumstances demanded it. Now for the outcome. The squashes I did not cover were not troubled worth mentioning, after which I concluded to mash the bugs and drop them around on the ground. In fact, these hills did rather better than the covered ones, because the box cut off the light. At the present writing, June 13, I have not been able to find a bug since that Sunday morning; and my impression is that the sight of their mashed and wounded companions scared them so that they all flew away to "healthier" hunting-grounds; and this only emphasizes the conclusion I

have been coming to for some time; and it will apply to rats and mice, potato-bugs, squash-bugs, flies, mosquitoes, ants, etc. Get right after them; mash them right and left whenever an opportunity offers, and all these pests will sooner or later give your locality a wide berth.

I have not yet used any poison on my potato-bugs this year at all; but, of course, I have not a very large patch of potatoes. It is mostly the one row of Early Ohio I have mentioned. I go along this row every morning, noon, and night, and sometimes oftener, picking off every mature bug I can find, dropping them on the ground, and crushing them with a twisting motion of my foot. I think the smell of the crushed bugs has much to do with their keeping away new comers. You may recall that Terry thinks it is cheaper to hand-pick the first "mother" bugs that appear, before they have time to lay eggs, than to use poison. Of course, this applies only where the bugs are found in limited numbers.

Now, please remember this: Get right after whatever annoys you in the garden or in the poultry-house. Give them no quarter.

CHICKEN MITES—A CAUTION.

And this reminds me that I had a very nice coop made for a hen and chickens. It had wire-cloth doors so as to keep out rats and all other kinds of vermin. It had also a good roof and a door for the little chicks, a

place where the hen can sit on the bare ground or on the bare floor, as she thinks best. I loaned this coop to a neighbor, as it was not in use. In fact, I *assured* him he could have it "just as well as not." When it came home last fall, it was put away safely in the back cellar. When I got it out for the hen and chickens a few days ago it was almost literally alive with mites so minute that one could hardly see them with the naked eye unless it was out in the full rays of the sun. I mixed up some kerosene and mothballs and soaked the whole structure—every crack and crevice—and I *think* they are all dead. Now, is it not a little strange that these mites lived for six months or even more in a cold dark cellar, without any "visible means of support"? My impression is that they ate into the wood where there was no paint, and found sufficient sustenance on the decaying wood to keep them alive for six months, and possibly the mites might have been in a dormant condition, or perhaps the eggs laid last fall just hatched out.

Let me say in closing that it is a commendable thing to be ready and willing to lend things to your neighbors—especially those things you are not using yourself: but if you should lend a chicken-coop, look out that it does not have something inside when it comes back that it did *not* have when it went away.

HEALTH NOTES

ROBBING SICK PEOPLE; QUACK DOCTORS, ETC.

One of the best boys I ever had in my employ began helping me in the garden when he was scarcely a dozen years old. In fact, I put him in as a boy foreman when we were growing plants for sale, and I gave you his picture years ago where he had about a dozen other youngsters in charge. Four or five years ago, from lifting or something of the sort, he had a pain in his side. He consulted several of our home physicians, but there seemed to be a disagreement in regard to where the trouble was. Different doctors from time to time were so sure they could cure him that it took about all he could earn for several years to pay his doctor bills. About a year ago I found he was paying a woman for chiropractic treatment, and had paid her quite a little money. I advised him to go to the city and have an operation. But he dreaded an operation, and kept putting it off. As several of our readers have asked me in reference to chiropractic, and as Mrs. Root

had a stiff neck on account of catching cold, I went with her to the woman doctor for treatment. She said something was out of place in Mrs. Root's neck, and added that she could fix it all right. After she had manipulated for ten or fifteen minutes, and had received her dollar. Mrs. Root mentioned that she was going to the dentist's.

"Oh dear me!" said the woman doctor, "the dentist will get your neck all out of place again, and after you have been there you will have to come back and have it done all over again." As that would cost another dollar, Mrs. Root and I thought we had invested enough in that line. It did not do Mrs. Root a particle of good; and when the woman mentioned that she had entirely cured an acquaintance of ours who had a "course of treatment," we took pains to inquire of said friend. She replied promptly that her son had paid the woman a lot of money for treatment, and it had done *no good* at all. Now for the moral of my little story.

Our friend Frank, whom I have told you about, was finally induced to go to Cleveland and have an "X-ray" examination. They said at once that one of his kidneys--the one on the side where he had been feeling pain for years, was decayed and practically gone. The kidney has just been removed by a surgical operation; but because the matter had been allowed to run so long the decaying kidney had affected the lungs, and the surgeon thinks his recovery doubtful, although he is going to do his best for him. Now, this woman doctor and other

doctors (most of them strangers) by assuring him they could manage his troubles, induced him to put it off until now it may be too late. This matter is brought to mind by the following clipping:

"Chiropractic," says *The Journal of the American Medical Association*, "is in no sense a profession. It is a scheme by which sharpers induce men, generally of little education and with a dwarfed sense of moral obligation, to learn the tricks of a disreputable trade--quackery."

From what experience I have had in the above, I should say the American Medical Association is exactly right about it.

TEMPERANCE

FRIEND DOOLITTLE TALKS TO US ABOUT THE SALOON BUSINESS.

Dear Brother Root:—Enclosed find something for your department in GLEANINGS. I hope you may see fit to have it appear before the many readers of GLEANINGS. I stand ready to back up every word of what I have written.

I am sorry about this Mexican-war scare coming up just at this time when the minds of the masses were turned as never before toward getting out from under the "yoke of Gambrinus." Now all eyes are turning away from the real issue in our country, by the great display of war headlines in our daily newspapers.

But we know this, that

When right is on the scaffold
And wrong upon the throne,
Behind the scene sits God himself,
Watching o'er his own.

And so we trust that out of all the wickedness of men, right will finally prevail.

Marietta, N. Y., June 6. G. M. DOOLITTLE.

Amen, Bro. D., for the verse you give us. There are many people, myself included, who need to keep calling to mind that "there is a God in Israel."

Below is the article referred to:

"UNCLE SAM" AT THE HEAD OF THE LIQUOR BUSINESS.

My dear Mr. Root:—In Our Homes, second paragraph, page 396, May 15, you say, "The liquor business has shown itself to be bigger than Uncle Sam." Does not this convey a wrong impression? The only logical conclusion the studious, earnest, careful thinker can come to in this liquor-business matter is, that the Government (Uncle Sam) is the liquor business, inasmuch as not a gallon of liquor can be legally sold in the United States only as Uncle Sam becomes the first party in the transaction. Only in the Government at Washington can be found the headquarters of this business. This seems plain to the one who has looked into the matter far enough to know the real facts, that every saloon under the jurisdiction of the United States is a government saloon. The proof of this assertion lies in the fact that no person can sell liquors in any of Uncle Sam's domains without a permit from the Government, only as he subjects himself to being arrested as a criminal. It is this permit that keeps the saloon and liquor business where it can ruin our boys and the homes of our fair land. All saloons are established by Uncle Sam, not by the men in the liquor business. And here has been the trouble with our temperance work

in the past. The Government is the head of this matter, and the approximate 250,000 saloons are the hairs growing from the head. In the past, our work has been "moral suasion" and the plucking out of a hair here and there, while the head was left. Consequently, after we had pulled out a hair in the shape of a saloon or a town, and called our place dry, we soon found that the head could grow another hair in the place of the one we had worked so hard to pluck, and the first we knew we were wet again. Even whole States which went dry were turned back to the wet again under the fostering care of the head, that the revenue from the wet might build our battle-ships, dig the Panama Canal, etc., this revenue from liquor and tobacco amounting to about one-half of our Government expenses, as given by the *Free Press*, and quoted in the first paragraph on page 663 of GLEANINGS for September 15, 1913. And it is with shamefacedness that it must be acknowledged that you and I, friend Root, have our share in that revenue, whether we wish to or not. And, sharing in this revenue, we in the past have condemned the men who "stood behind the bar" while, through our ballots, we have sanctioned and sustained the head which could have received no revenue only as it came from these keepers of our Government saloons. Let's get things right, and place the responsibility where it belongs, when we shall know how to work more intelligently than we have been doing in the past.

Borodino, N. Y.

G. M. DOOLITTLE.

THE LONDON TEMPERANCE HOSPITAL

We are glad to give place to the following:

Mr. A. I. Root:—In the temperance section of your issue for May 15 I notice an inquiry for the address of the London Temperance Hospital. It is located in Hampstead Road, in the northwest part of London. I well remember this famous institution, as I used to pass its doors every school day from the years 1879 to 1884, on my way to school. I was born about a mile from the hospital, and once had my young heart nearly burst at the sight of a little boy, who had been run over in the street, being driven in a carriage through the hospital gates. As the district is a poor one—that is, its inhabitants are not financially well fixed—this hospital must indeed prove an inestimable boon, for the services rendered there are, of course, quite free, as with the other London hospitals, and such like institutions scattered throughout my native land. Any correspondence addressed to the London Temperance Hospital, London, England, would assuredly reach that institution safely.

ALBERT G. NICHOLSON.

Rustburg, Va., May 22.